SEQUENCE LISTING

<110> Nagaike, Kazuhiro
       Mori, Yasuko
       Gomi, Yasuyuki
       Takahashi, Michiaki
       Kouichi, Yamanishi

<120> Recombinant varicella-zoster virus

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<141> 2009-05-19

<150> PCT/JP2005/003652
<151> 2005-03-05

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<170> PatentIn version 3.2

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acacgtttta agtactgttg gaactccctc accaaccgca aycgcaatcc tttgaaggct    180

gcgagagcgt ttggaaaact cgggtacgtc taaattcacc ccagygcg atg gat acg    237
                                                    Met Asp Thr
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ccg ccg atg cag cgc tct aca ccc caa cgc gcg ggg tcg cct gat act    285
Pro Pro Met Gln Arg Ser Thr Pro Gln Arg Ala Gly Ser Pro Asp Thr
   5                  10                  15

ttg gag tta atg gac ctg ttg gac gcg gcc gcc gcg gcc gcc gaa cac    333
Leu Glu Leu Met Asp Leu Leu Asp Ala Ala Ala Ala Ala Ala Glu His
20                  25                  30                  35

agg gcc cgg gtg gtc acc tcg agt cag cct gac gat cta cta ttt gga    381
Arg Ala Arg Val Val Thr Ser Ser Gln Pro Asp Asp Leu Leu Phe Gly
               40                  45                  50

gag aac ggg gtc atg gtg gga cgg gaa cat gag atc gtt tca att ccc    429
Glu Asn Gly Val Met Val Gly Arg Glu His Glu Ile Val Ser Ile Pro
           55                  60                  65
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Ser Val Ser Gly Leu Gln Pro Glu Pro Arg Thr Glu Asp Val Gly Glu
        70                  75                  80

gag cta aca caa gac gac tac gta tgc gag gac ggt cag gat cta ayg     525
Glu Leu Thr Gln Asp Asp Tyr Val Cys Glu Asp Gly Gln Asp Leu Xaa
        85                  90                  95

ggc tcg cct gta atc ccg ctg gcc gag gtc ttc cac acc cga ttc tcg     573
Gly Ser Pro Val Ile Pro Leu Ala Glu Val Phe His Thr Arg Phe Ser
100                 105                 110                 115

gag gcc ggc gcg cga gaa cca aca gga gcc gat cgc tcc ctc gag aca     621
Glu Ala Gly Ala Arg Glu Pro Thr Gly Ala Asp Arg Ser Leu Glu Thr
                120                 125                 130

gtc tct ctc gga acg aag ctt gct agg tct cca aaa cca ccg atg aac     669
Val Ser Leu Gly Thr Lys Leu Ala Arg Ser Pro Lys Pro Pro Met Asn
                135                 140                 145

gat ggg gaa acg ggc aga ggt acg acc cct ccg ttc ccg cag gcc ttc     717
Asp Gly Glu Thr Gly Arg Gly Thr Thr Pro Pro Phe Pro Gln Ala Phe
        150                 155                 160

tcc cct gta tcc ccc gcg tct cct gtt gga gac gcc gcc ggg aac gat     765
Ser Pro Val Ser Pro Ala Ser Pro Val Gly Asp Ala Ala Gly Asn Asp
        165                 170                 175

caa cgg gaa gac cag cgg tct ata ccc cga caa acg acg aga gga aat     813
Gln Arg Glu Asp Gln Arg Ser Ile Pro Arg Gln Thr Thr Arg Gly Asn
180                 185                 190                 195

tca cca ggt ttg ccg tcg gtg gtc cat cga gac aga caa act cag tcc     861
Ser Pro Gly Leu Pro Ser Val Val His Arg Asp Arg Gln Thr Gln Ser
                200                 205                 210

atc tcg ggt aaa aag ccg ggc gat gag caa gcg ggt cat gcg cat gca     909
Ile Ser Gly Lys Lys Pro Gly Asp Glu Gln Ala Gly His Ala His Ala
                215                 220                 225

tcg ggg gac gga gta gtt ctc cag aaa act caa cgg ccc gct cag gga     957
Ser Gly Asp Gly Val Val Leu Gln Lys Thr Gln Arg Pro Ala Gln Gly
        230                 235                 240

aag agc ccg aag aaa aag act ttg aag gtt aag gtc cca ctc ccg gcg    1005
Lys Ser Pro Lys Lys Lys Thr Leu Lys Val Lys Val Pro Leu Pro Ala
        245                 250                 255

cgg aaa ccc ggt gga cct gta ccc ggc ccg gtt gag caa ttg tac cac    1053
Arg Lys Pro Gly Gly Pro Val Pro Gly Pro Val Glu Gln Leu Tyr His
260                 265                 270                 275

gtc ctt tcg gac agc gtt ccc gct aag ggg gca aag gcg gac ctg ccg    1101
Val Leu Ser Asp Ser Val Pro Ala Lys Gly Ala Lys Ala Asp Leu Pro
                280                 285                 290

ttt gag acc gat gat acc cgc cca agg aaa cat gat gcc cgg ggt ata    1149
Phe Glu Thr Asp Asp Thr Arg Pro Arg Lys His Asp Ala Arg Gly Ile
                295                 300                 305

aca cct cgc gtc cct gga cgt tcg tcg ggg ggc aaa cct aga gcg ttt    1197
Thr Pro Arg Val Pro Gly Arg Ser Ser Gly Gly Lys Pro Arg Ala Phe
310                 315                 320
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Leu Ala Leu Pro Gly Arg Ser His Ala Pro Asp Pro Ile Glu Asp Asp
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agc ccg gtg gag aaa aag cca aag agt cgt gag ttt gtt tcg tct tca      1293
Ser Pro Val Glu Lys Lys Pro Lys Ser Arg Glu Phe Val Ser Ser Ser
340             345                 350                 355

tcc tct tcc tcg tcg tgg gga tcg tca tcg gag gat gaa gac gat gaa      1341
Ser Ser Ser Ser Ser Trp Gly Ser Ser Ser Glu Asp Glu Asp Asp Glu
            360                 365                 370

ccc cgg cgc gtt tcg gtg gga agt gaa act aca ggc agc agg tcc gga      1389
Pro Arg Arg Val Ser Val Gly Ser Glu Thr Thr Gly Ser Arg Ser Gly
            375                 380                 385

cgc gaa cac gcc cct tcc ccg tca aat tcg gat gat tcg gac tca aat      1437
Arg Glu His Ala Pro Ser Pro Ser Asn Ser Asp Asp Ser Asp Ser Asn
        390                 395                 400

gat ggt ggg tcg acg aaa caa aat atc caa ccg gga tat cga tcc atc      1485
Asp Gly Gly Ser Thr Lys Gln Asn Ile Gln Pro Gly Tyr Arg Ser Ile
    405                 410                 415

agc ggt ccc gat ccg agg att cgt aag acc aaa cgt ctt gcg ggg gaa      1533
Ser Gly Pro Asp Pro Arg Ile Arg Lys Thr Lys Arg Leu Ala Gly Glu
420             425                 430                 435

ccg ggg cgc cag aga cag aaa tca ttt tcc ctg ccg cga tcc aga acc      1581
Pro Gly Arg Gln Arg Gln Lys Ser Phe Ser Leu Pro Arg Ser Arg Thr
            440                 445                 450

ccg ata att ccc ccg gtg tcg ggg ccg ctc atg atg ccc gac gga agc      1629
Pro Ile Ile Pro Pro Val Ser Gly Pro Leu Met Met Pro Asp Gly Ser
            455                 460                 465

cct tgg ccc gga tcg gcg ccc ctc cca tcc aac agg gtg cgg ttt gga      1677
Pro Trp Pro Gly Ser Ala Pro Leu Pro Ser Asn Arg Val Arg Phe Gly
            470                 475                 480

ccg tcc ggg gag acc aga gag ggt cac tgg gag gat gag gct gtg aga      1725
Pro Ser Gly Glu Thr Arg Glu Gly His Trp Glu Asp Glu Ala Val Arg
    485                 490                 495

gcg gcg cgg gct cgt tac gag gcc tca act gaa ccc gyg ccg ctt tac      1773
Ala Ala Arg Ala Arg Tyr Glu Ala Ser Thr Glu Pro Xaa Pro Leu Tyr
500                 505                 510                 515

gtg ccg gag ttg gga gat ccg gct aga cag tac cgc gcg ctg att aac      1821
Val Pro Glu Leu Gly Asp Pro Ala Arg Gln Tyr Arg Ala Leu Ile Asn
                520                 525                 530

ctg atc tac tgt cca gac aga gac cct ata gca tgg ctc cag aac ccc      1869
Leu Ile Tyr Cys Pro Asp Arg Asp Pro Ile Ala Trp Leu Gln Asn Pro
            535                 540                 545

aag ctg acc ggt gtc aac tcg gcc ctg aac cag ttc tac caa aag ctg      1917
Lys Leu Thr Gly Val Asn Ser Ala Leu Asn Gln Phe Tyr Gln Lys Leu
        550                 555                 560

ttg cca ccg gga cgg gcg ggt acc gcc gtt acg ggg agc gta gcg tct      1965
Leu Pro Pro Gly Arg Ala Gly Thr Ala Val Thr Gly Ser Val Ala Ser
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          565                      570                      575

ccc gtt ccg cat gta ggc gaa gcc atg gcc acg ggg gag gcc ctc tgg    2013
Pro Val Pro His Val Gly Glu Ala Met Ala Thr Gly Glu Ala Leu Trp
580                      585                      590                      595

gct ctc ccc cac gcg gcc gcg gcc gtg gct atg agc cgt cgg tac gac    2061
Ala Leu Pro His Ala Ala Ala Ala Val Ala Met Ser Arg Arg Tyr Asp
                         600                      605                      610

cgg gcc caa aaa cac ttt atc cta cag agt ctc cgc aga gcc ttt gcc    2109
Arg Ala Gln Lys His Phe Ile Leu Gln Ser Leu Arg Arg Ala Phe Ala
                         615                      620                      625

ggc atg gca tac ccc gag gca acg ggc tcc agt ccg gcg gcg cgg atc    2157
Gly Met Ala Tyr Pro Glu Ala Thr Gly Ser Ser Pro Ala Ala Arg Ile
                         630                      635                      640

tcc cgc ggt cac cct tct cca aca acc ccg gcc aca cag act ccc gac    2205
Ser Arg Gly His Pro Ser Pro Thr Thr Pro Ala Thr Gln Thr Pro Asp
                         645                      650                      655

cct cag ccg tcg gcc gcc gcg cgc tct ctt tct gtg tgt cca ccg gat    2253
Pro Gln Pro Ser Ala Ala Ala Arg Ser Leu Ser Val Cys Pro Pro Asp
660                      665                      670                      675

gat cgt tta cga act ccg cgc aag cgc aag tcc cag cca gtc gag agc    2301
Asp Arg Leu Arg Thr Pro Arg Lys Arg Lys Ser Gln Pro Val Glu Ser
                         680                      685                      690

aga agc ctc ctc gac aag att agg gag aca ccc gtc gcg gac gcc cgg    2349
Arg Ser Leu Leu Asp Lys Ile Arg Glu Thr Pro Val Ala Asp Ala Arg
                         695                      700                      705

gtt gca gac gat cat gtg gtt tcc aag gcc aag agg cgg gta tcc gag    2397
Val Ala Asp Asp His Val Val Ser Lys Ala Lys Arg Arg Val Ser Glu
                         710                      715                      720

ccc gtg acc atc acc tcg ggc cct gtg gtg gat ccc ccc gcc gta ata    2445
Pro Val Thr Ile Thr Ser Gly Pro Val Val Asp Pro Pro Ala Val Ile
                         725                      730                      735

acg atg cca ctt gac gga ccg gcc cca aac ggg gga ttt cgg cgt att    2493
Thr Met Pro Leu Asp Gly Pro Ala Pro Asn Gly Gly Phe Arg Arg Ile
740                      745                      750                      755

ccc cgg ggg gcc ctg cat acc ccg gtc ccg tcg gac cag gct cgc aag    2541
Pro Arg Gly Ala Leu His Thr Pro Val Pro Ser Asp Gln Ala Arg Lys
                         760                      765                      770

gcg tac tgt acc ccc gaa acc atc gcc cgt ctg gtc gac gac cca ttg    2589
Ala Tyr Cys Thr Pro Glu Thr Ile Ala Arg Leu Val Asp Asp Pro Leu
                         775                      780                      785

ttt ccc acg gcc tgg cgc cct gcg cta agc ttt gat ccc ggc gcc ttg    2637
Phe Pro Thr Ala Trp Arg Pro Ala Leu Ser Phe Asp Pro Gly Ala Leu
                         790                      795                      800

gcg gaa atc gcc gct cgg cgt ccg ggc gga gga gac cga cgg ttt ggt    2685
Ala Glu Ile Ala Ala Arg Arg Pro Gly Gly Gly Asp Arg Arg Phe Gly
                         805                      810                      815

cca ccc agc gga gtg gag gcg ctg cga cgg agg tgc gcc tgg atg cgg    2733
Pro Pro Ser Gly Val Glu Ala Leu Arg Arg Arg Cys Ala Trp Met Arg
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cag atc cca gac ccg gag gat gtg agg ctt ctg atc atc tac gat ccg      2781
Gln Ile Pro Asp Pro Glu Asp Val Arg Leu Leu Ile Ile Tyr Asp Pro
                840             845             850

ttg ccc gga gag gac atc aac ggc ccc ctc gag agc acc ctc gcg aca      2829
Leu Pro Gly Glu Asp Ile Asn Gly Pro Leu Glu Ser Thr Leu Ala Thr
                855             860             865

gat ccg gga ccg tca tgg agt cca tcc cga ggg gga ctg tct gtg gtc      2877
Asp Pro Gly Pro Ser Trp Ser Pro Ser Arg Gly Gly Leu Ser Val Val
            870             875             880

ctg gca gcc ctg agt aac cgg ttg tgc ctg ccg agc act cat gcc tgg      2925
Leu Ala Ala Leu Ser Asn Arg Leu Cys Leu Pro Ser Thr His Ala Trp
        885             890             895

gcc ggg aac tgg acc ggc ccg ccg gac gtg tcc gct ttg aac gcc cgg      2973
Ala Gly Asn Trp Thr Gly Pro Pro Asp Val Ser Ala Leu Asn Ala Arg
900             905             910             915

ggc gtt tta tta ctg tcg acc cga gac ctg gcc ttt gcc ggg gcc gtc      3021
Gly Val Leu Leu Leu Ser Thr Arg Asp Leu Ala Phe Ala Gly Ala Val
                920             925             930

gag tat cta ggc tcg cgg ttg gcc tct gcc cgg cgc cgg ttg ctg gtg      3069
Glu Tyr Leu Gly Ser Arg Leu Ala Ser Ala Arg Arg Arg Leu Leu Val
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ttg gac gcg gtg gcc ctc gag agg tgg ccc ggg gat gga ccc gct ttg      3117
Leu Asp Ala Val Ala Leu Glu Arg Trp Pro Gly Asp Gly Pro Ala Leu
            950             955             960

tct cag tat cac gtg tac gtc cgg gcc ccg gcg cga ccg gac gcc cag      3165
Ser Gln Tyr His Val Tyr Val Arg Ala Pro Ala Arg Pro Asp Ala Gln
            965             970             975

gcc gtc gtc cga tgg cca gac tcg gcg gtc aca gaa gga ctc gcc cgg      3213
Ala Val Val Arg Trp Pro Asp Ser Ala Val Thr Glu Gly Leu Ala Arg
980             985             990             995

gcc gtg ttt gca tcg  tcg cgc acc ttt ggg  cca gcg agt ttt gct       3258
Ala Val Phe Ala Ser  Ser Arg Thr Phe Gly  Pro Ala Ser Phe Ala
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cgt atc gag act gcg  ttt gcc aac ctg tac  ccg ggc gaa caa ccc       3303
Arg Ile Glu Thr Ala  Phe Ala Asn Leu Tyr  Pro Gly Glu Gln Pro
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ctg tgt ttg tgc cgc  ggt ggg aac gtc gca  tac acc gtg tgt acc       3348
Leu Cys Leu Cys Arg  Gly Gly Asn Val Ala  Tyr Thr Val Cys Thr
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cgc gcg ggc ccc aag  acc cgc gtc ccc ctg  tcg ccc cgt gaa tac       3393
Arg Ala Gly Pro Lys  Thr Arg Val Pro Leu  Ser Pro Arg Glu Tyr
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cgg cag tac gtg ctg  ccg ggt ttt gac ggt  tgc aag gac ctc gcg       3438
Arg Gln Tyr Val Leu  Pro Gly Phe Asp Gly  Cys Lys Asp Leu Ala
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gag gcg gca cat agc  cac cgc gca gca aac  cga tgg ggc ctg ggt        3528
Glu Ala Ala His Ser  His Arg Ala Ala Asn  Arg Trp Gly Leu Gly
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gcc gcg ctt cga ccc  gtc ttc ctt ccc gag  gga cgg aga ccg ggg        3573
Ala Ala Leu Arg Pro  Val Phe Leu Pro Glu  Gly Arg Arg Pro Gly
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gcc gcc ggg ccg gag  gcc ggc gac gta ccc  acc tgg gcg agg gtg        3618
Ala Ala Gly Pro Glu  Ala Gly Asp Val Pro  Thr Trp Ala Arg Val
            1120                 1125                 1130

ttt tgc cgc cac gcc  ctg ctg gaa ccc gac  cct gcc gcg gaa cca        3663
Phe Cys Arg His Ala  Leu Leu Glu Pro Asp  Pro Ala Ala Glu Pro
            1135                 1140                 1145

ctc gtg ctt cca ccc  gtg gcc ggt cgg tcg  gtg gcg ctg tat gcg        3708
Leu Val Leu Pro Pro  Val Ala Gly Arg Ser  Val Ala Leu Tyr Ala
            1150                 1155                 1160

tcg gcg gac gag gct  cgg aat gcc ctc ccc  ccg att ccc aga gta        3753
Ser Ala Asp Glu Ala  Arg Asn Ala Leu Pro  Pro Ile Pro Arg Val
            1165                 1170                 1175

atg tgg ccg ccc ggt  ttt ggg gcc gcg gag  acg gtg ttg gag ggg        3798
Met Trp Pro Pro Gly  Phe Gly Ala Ala Glu  Thr Val Leu Glu Gly
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agc gac gga aca cgg  ttc gcg ttc gga cac  cac ggg ggc tcg gaa        3843
Ser Asp Gly Thr Arg  Phe Ala Phe Gly His  His Gly Gly Ser Glu
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cgg ccg gca gaa acc  cag gcg ggg cga cag  cgg cgc acc gca gac        3888
Arg Pro Ala Glu Thr  Gln Ala Gly Arg Gln  Arg Arg Thr Ala Asp
            1210                 1215                 1220

gac aga gaa cac gct  ttg gag ccg gac gat  tgg gag gtg ggg tgt        3933
Asp Arg Glu His Ala  Leu Glu Pro Asp Asp  Trp Glu Val Gly Cys
            1225                 1230                 1235

gaa gac gcg tgg gac  agc gag gag ggg ggc  ggg gac gac ggg gac        3978
Glu Asp Ala Trp Asp  Ser Glu Glu Gly Gly  Gly Asp Asp Gly Asp
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gca ccg ggg tca tcc  ttt ggg gtg agc gtc  gtg tcg gtg gcc ccg        4023
Ala Pro Gly Ser Ser  Phe Gly Val Ser Val  Val Ser Val Ala Pro
            1255                 1260                 1265

ggt gtg ctg cga gac  cgc cgg gtg ggc tyg  cgc ccg gcg gtc aag        4068
Gly Val Leu Arg Asp  Arg Arg Val Gly Xaa  Arg Pro Ala Val Lys
            1270                 1275                 1280

gtg gag ctg ttg tcc  tcg tcc tcg tcc tcc  gag gac gag gac gat        4113
Val Glu Leu Leu Ser  Ser Ser Ser Ser Ser  Glu Asp Glu Asp Asp
            1285                 1290                 1295

gtg tgg gga ggg cgc  ggg ggg agg agc ccc  ccg cag agt cgg ggg        4158
Val Trp Gly Gly Arg  Gly Gly Arg Ser Pro  Pro Gln Ser Arg Gly
            1300                 1305                 1310
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            20   25   30

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        35   40   45

Leu Phe Gly Glu Asn Gly Val Met Val Gly Arg Glu His Glu Ile Val
    50   55   60

Ser Ile Pro Ser Val Ser Gly Leu Gln Pro Glu Pro Arg Thr Glu Asp
65   70   75   80

Val Gly Glu Glu Leu Thr Gln Asp Asp Tyr Val Cys Glu Asp Gly Gln
                85   90   95

Asp Leu Xaa Gly Ser Pro Val Ile Pro Leu Ala Glu Val Phe His Thr
            100   105   110

Arg Phe Ser Glu Ala Gly Ala Arg Glu Pro Thr Gly Ala Asp Arg Ser
        115   120   125

Leu Glu Thr Val Ser Leu Gly Thr Lys Leu Ala Arg Ser Pro Lys Pro
    130   135   140

Pro Met Asn Asp Gly Glu Thr Gly Arg Gly Thr Thr Pro Pro Phe Pro
145   150   155   160

Gln Ala Phe Ser Pro Val Ser Pro Ala Ser Pro Val Gly Asp Ala Ala
            165   170   175

Gly Asn Asp Gln Arg Glu Asp Gln Arg Ser Ile Pro Arg Gln Thr Thr
            180   185   190

Arg Gly Asn Ser Pro Gly Leu Pro Ser Val Val His Arg Asp Arg Gln
            195   200   205

Thr Gln Ser Ile Ser Gly Lys Lys Pro Gly Asp Glu Gln Ala Gly His
    210   215   220

Ala His Ala Ser Gly Asp Gly Val Val Leu Gln Lys Thr Gln Arg Pro
225   230   235   240

Ala Gln Gly Lys Ser Pro Lys Lys Lys Thr Leu Lys Val Lys Val Pro
            245   250   255

Leu Pro Ala Arg Lys Pro Gly Gly Pro Val Pro Gly Pro Val Glu Gln
            260   265   270

Leu Tyr His Val Leu Ser Asp Ser Val Pro Ala Lys Gly Ala Lys Ala
    275   280   285

Asp Leu Pro Phe Glu Thr Asp Asp Thr Arg Pro Arg Lys His Asp Ala
    290   295   300

Arg Gly Ile Thr Pro Arg Val Pro Gly Arg Ser Ser Gly Gly Lys Pro
305   310   315   320

Arg Ala Phe Leu Ala Leu Pro Gly Arg Ser His Ala Pro Asp Pro Ile
            325   330   335

Glu Asp Asp Ser Pro Val Glu Lys Lys Pro Lys Ser Arg Glu Phe Val
            340   345   350

Ser Ser Ser Ser Ser Ser Ser Ser Trp Gly Ser Ser Ser Glu Asp Glu
            355   360   365

Asp Asp Glu Pro Arg Arg Val Ser Val Gly Ser Glu Thr Thr Gly Ser
    370   375   380

Arg Ser Gly Arg Glu His Ala Pro Ser Pro Ser Asn Ser Asp Asp Ser

385   390   395   400

Asp Ser Asn Asp Gly Gly Ser Thr Lys Gln Asn Ile Gln Pro Gly Tyr
            405   410   415

Arg Ser Ile Ser Gly Pro Asp Pro Arg Ile Arg Lys Thr Lys Arg Leu
            420   425   430

Ala Gly Glu Pro Gly Arg Gln Arg Gln Lys Ser Phe Ser Leu Pro Arg
            435   440   445

Ser Arg Thr Pro Ile Ile Pro Pro Val Ser Gly Pro Leu Met Met Pro
    450   455   460

Asp Gly Ser Pro Trp Pro Gly Ser Ala Pro Leu Pro Ser Asn Arg Val
465   470   475   480

Arg Phe Gly Pro Ser Gly Glu Thr Arg Glu Gly His Trp Glu Asp Glu
            485   490   495

Ala Val Arg Ala Ala Arg Ala Arg Tyr Glu Ala Ser Thr Glu Pro Xaa
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Pro Leu Tyr Val Pro Glu Leu Gly Asp Pro Ala Arg Gln Tyr Arg Ala
            515   520   525

Leu Ile Asn Leu Ile Tyr Cys Pro Asp Arg Asp Pro Ile Ala Trp Leu
    530   535   540

Gln Asn Pro Lys Leu Thr Gly Val Asn Ser Ala Leu Asn Gln Phe Tyr
545   550   555   560

Gln Lys Leu Leu Pro Pro Gly Arg Ala Gly Thr Ala Val Thr Gly Ser
            565   570   575

Val Ala Ser Pro Val Pro His Val Gly Glu Ala Met Ala Thr Gly Glu
            580   585   590

Ala Leu Trp Ala Leu Pro His Ala Ala Ala Val Ala Met Ser Arg
            595   600   605

Arg Tyr Asp Arg Ala Gln Lys His Phe Ile Leu Gln Ser Leu Arg Arg
    610   615   620

Ala Phe Ala Gly Met Ala Tyr Pro Glu Ala Thr Gly Ser Ser Pro Ala
625   630   635   640

Ala Arg Ile Ser Arg Gly His Pro Ser Pro Thr Thr Pro Ala Thr Gln
            645   650   655

Thr Pro Asp Pro Gln Pro Ser Ala Ala Ala Arg Ser Leu Ser Val Cys
            660   665   670

Pro Pro Asp Asp Arg Leu Arg Thr Pro Arg Lys Arg Lys Ser Gln Pro
            675   680   685

Val Glu Ser Arg Ser Leu Leu Asp Lys Ile Arg Glu Thr Pro Val Ala
    690   695   700

Asp Ala Arg Val Ala Asp Asp His Val Val Ser Lys Ala Lys Arg Arg
705   710   715   720

Val Ser Glu Pro Val Thr Ile Thr Ser Gly Pro Val Val Asp Pro Pro
            725   730   735

Ala Val Ile Thr Met Pro Leu Asp Gly Pro Ala Pro Asn Gly Gly Phe
            740   745   750

Arg Arg Ile Pro Arg Gly Ala Leu His Thr Pro Val Pro Ser Asp Gln
            755   760   765

Ala Arg Lys Ala Tyr Cys Thr Pro Glu Thr Ile Ala Arg Leu Val Asp
    770   775   780

Asp Pro Leu Phe Pro Thr Ala Trp Arg Pro Ala Leu Ser Phe Asp Pro
785   790   795   800

Gly Ala Leu Ala Glu Ile Ala Ala Arg Pro Gly Gly Gly Asp Arg
            805   810   815

Arg Phe Gly Pro Pro Ser Gly Val Glu Ala Leu Arg Arg Arg Cys Ala
            820   825   830

Trp Met Arg Gln Ile Pro Asp Pro Glu Asp Val Arg Leu Leu Ile Ile
            835   840   845

Tyr Asp Pro Leu Pro Gly Glu Asp Ile Asn Gly Pro Leu Glu Ser Thr
    850   855   860

Leu Ala Thr Asp Pro Gly Pro Ser Trp Ser Pro Ser Arg Gly Gly Leu
865   870   875   880

Ser Val Val Leu Ala Ala Leu Ser Asn Arg Leu Cys Leu Pro Ser Thr
            885   890   895

His Ala Trp Ala Gly Asn Trp Thr Gly Pro Pro Asp Val Ser Ala Leu
        900   905   910

Asn Ala Arg Gly Val Leu Leu Ser Thr Arg Asp Leu Ala Phe Ala
        915   920   925

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atg ggc tcc act ctg gtg cgt ccc agt tta aac gcc acc gcc gag gaa    1232
Met Gly Ser Thr Leu Val Arg Pro Ser Leu Asn Ala Thr Ala Glu Glu
        20                  25                  30

aat ccc gcg tca gaa acg cga tgt tta tta cga gtg ctt gcg ggg aga    1280
Asn Pro Ala Ser Glu Thr Arg Cys Leu Leu Arg Val Leu Ala Gly Arg
        35                  40                  45

act gta gac ctg cca ggc gga gga acg tta cac att acc tgt acc aaa    1328
Thr Val Asp Leu Pro Gly Gly Gly Thr Leu His Ile Thr Cys Thr Lys
50                  55                  60                  65

acc tat gta att att ggc aaa tat agc aaa ccc ggc gaa cgt ctt agc    1376
Thr Tyr Val Ile Ile Gly Lys Tyr Ser Lys Pro Gly Glu Arg Leu Ser
                70                  75                  80

ctt gcc cgt cta ata ggg cgt gca atg acg cct gga ggt gca agg aca    1424
Leu Ala Arg Leu Ile Gly Arg Ala Met Thr Pro Gly Gly Ala Arg Thr
                85                  90                  95

ttt att att ttg gcg atg aag gaa aag cga tcc aca acg ctt ggg tat    1472
Phe Ile Ile Leu Ala Met Lys Glu Lys Arg Ser Thr Thr Leu Gly Tyr
            100                 105                 110
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Glu Cys Gly Thr Gly Leu His Leu Leu Ala Pro Ser Met Gly Thr Phe
115                 120                 125

ctc cgc aca cac ggt tta agt aac aga gat ctc tgt tta tgg cgg ggt        1568
Leu Arg Thr His Gly Leu Ser Asn Arg Asp Leu Cys Leu Trp Arg Gly
130                 135                 140                 145

aat att tat gat atg cat atg caa cgt ctt atg ttt tgg gag aat atc        1616
Asn Ile Tyr Asp Met His Met Gln Arg Leu Met Phe Trp Glu Asn Ile
                150                 155                 160

gcg caa aat acc act gaa aca cct tgt ata acg tcg acg tta aca tgc        1664
Ala Gln Asn Thr Thr Glu Thr Pro Cys Ile Thr Ser Thr Leu Thr Cys
                165                 170                 175

aac ttg aca gaa gac tct ggt gaa gcc gca ctt acc acg tca gac cga        1712
Asn Leu Thr Glu Asp Ser Gly Glu Ala Ala Leu Thr Thr Ser Asp Arg
                180                 185                 190

ccc act ctc cca acc cta aca gcc caa gga aga cca aca gtt tcc aac        1760
Pro Thr Leu Pro Thr Leu Thr Ala Gln Gly Arg Pro Thr Val Ser Asn
195                 200                 205

att cgt gga ata ttg aaa gga tcc ccc cgt caa cag ccg gtc tgt cac        1808
Ile Arg Gly Ile Leu Lys Gly Ser Pro Arg Gln Gln Pro Val Cys His
210                 215                 220                 225

cgg gtt aga ttt gcc gaa cct acg gag ggc gta ttg atg taa            1850
Arg Val Arg Phe Ala Glu Pro Thr Glu Gly Val Leu Met
                230                 235
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Ser Leu Cys Gly Tyr Ala Arg Ile Pro Thr Glu Glu Pro Ser Tyr Glu
245   250   255   260

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Glu Val Arg Val Asn Thr His Pro Gln Gly Ala Ala Leu Leu Arg Leu
                265   270   275

caa gag gct tta acc gct gtg aat gga tta ttg cct gca cct cta acg   8768
Gln Glu Ala Leu Thr Ala Val Asn Gly Leu Leu Pro Ala Pro Leu Thr
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Leu Glu Asp Val Val Ala Ser Ala Asp Asn Thr Arg Arg Leu Val Arg
            295   300   305

gcc cag gct ttg gcg cga act tac gct gca tgt tct cgt aac att gaa   8864
Ala Gln Ala Leu Ala Arg Thr Tyr Ala Ala Cys Ser Arg Asn Ile Glu
        310   315   320

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Cys Leu Lys Gln His His Phe Thr Glu Asp Asn Pro Gly Leu Asn Ala
325   330   335   340

gtg gtc cgt tca cac atg gaa aac tca aaa cgg ctt gct gat atg tgt   8960
Val Val Arg Ser His Met Glu Asn Ser Lys Arg Leu Ala Asp Met Cys
                345   350   355

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Leu Ala Ala Ile Thr His Leu Tyr Leu Ser Val Gly Ala Val Asp Val
            360   365   370

act acg gat gat att gtc gat caa acc ctg aga atg acc gct gaa agt   9056
Thr Thr Asp Asp Ile Val Asp Gln Thr Leu Arg Met Thr Ala Glu Ser
            375   380   385

gaa gtg gtc atg tct gat gtt gtt ctt ttg gag aaa act ctt ggg gtc   9104
Glu Val Val Met Ser Asp Val Val Leu Leu Glu Lys Thr Leu Gly Val
    390   395   400

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Val Ala Lys Pro Gln Ala Ser Phe Asp Val Ser His Asn His Glu Leu
405   410   415   420

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Ser Ile Ala Lys Gly Glu Asn Val Gly Leu Lys Thr Ser Pro Ile Lys
                425   430   435

tcg gag gcg aca caa tta tct gaa att aaa ccc cca ctt ata gaa gta   9248
Ser Glu Ala Thr Gln Leu Ser Glu Ile Lys Pro Pro Leu Ile Glu Val
            440   445   450

tcg gat aat aac aca tct aac cta aca aaa aaa acg tat ccg aca gaa   9296
Ser Asp Asn Asn Thr Ser Asn Leu Thr Lys Lys Thr Tyr Pro Thr Glu
            455   460   465

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Thr Leu Gln Pro Val Leu Thr Pro Lys Gln Thr Gln Asp Val Gln Arg
    470                 475                 480

aca acc ccc gcg atc aag aaa tcc cat gtt atg ctt gta taa            9386
Thr Thr Pro Ala Ile Lys Lys Ser His Val Met Leu Val
485                 490                 495

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                                                                 Met

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Gly Ser Ile Thr Ala Ser Phe Ile Leu Ile Thr Met Gln Ile Leu Phe
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Phe Cys Glu Asp Ser Ser Gly Glu Pro Asn Phe Ala Glu Arg Asn Phe
515                 520                 525                 530

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Trp His Ala Ser Cys Ser Ala Arg Gly Val Tyr Ile Asp Gly Ser Met
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Ile Thr Thr Leu Phe Phe Tyr Ala Ser Leu Leu Gly Val Cys Val Ala
                550                    555                    560

ctt att tcg tta gct tat cat gcg tgt ttc cgg tta ttt act cgt tct      10884
Leu Ile Ser Leu Ala Tyr His Ala Cys Phe Arg Leu Phe Thr Arg Ser
                565                    570                    575

gta tta cgc agc acg tgg taaacccgtt tgcctataaa aggggcaggc            10932
Val Leu Arg Ser Thr Trp
            580

gtgtataaga gggcccctgt ttaatacgcg gtctgccgtg tttggatatt tcacgaccct   10992

atcgtttatt tacgta atg gca tct tcc gac ggt gac aga ctt tgt cgc tct   11044
                   Met Ala Ser Ser Asp Gly Asp Arg Leu Cys Arg Ser
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Asn Ala Val Arg Arg Lys Thr Thr Pro Ser Tyr Ser Gly Gln Tyr Arg
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Thr Ala Arg Arg Ser Val Val Val Gly Pro Pro Asp Asp Ser Asp Asp
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Ser Leu Gly Tyr Ile Thr Thr Val Gly Ala Asp Ser Pro Ser Pro Val
                630                    635                    640

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Tyr Ala Asp Leu Tyr Phe Glu His Lys Asn Thr Thr Pro Arg Val His
            645                    650                    655                    660

caa cca aac gac tcc agc gga tcg gaa gat gac ttt gaa gac atc gat      11284
Gln Pro Asn Asp Ser Ser Gly Ser Glu Asp Asp Phe Glu Asp Ile Asp
                        665                    670                    675

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Glu Val Val Ala Ala Phe Arg Glu Ala Arg Leu Arg His Glu Leu Val
                680                    685                    690

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Glu Asp Ala Val Tyr Glu Asn Pro Leu Ser Val Glu Lys Pro Ser Arg
                695                    700                    705

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Ser Phe Thr Lys Asn Ala Ala Val Lys Pro Lys Leu Glu Asp Ser Pro
            710                    715                    720

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Lys Arg Ala Pro Pro Gly Ala Gly Ala Ile Ala Ser Gly Arg Pro Ile
            725                    730                    735                    740

tcc ttc agc act gca cca aaa acc gca aca agc tcg tgg tgc ggt cct      11524
Ser Phe Ser Thr Ala Pro Lys Thr Ala Thr Ser Ser Trp Cys Gly Pro
                        745                    750                    755

acg cca tca tat aac aaa cgc gtc ttt tgt gaa gcg gtc cgg cgc gta      11572
Thr Pro Ser Tyr Asn Lys Arg Val Phe Cys Glu Ala Val Arg Arg Val
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Ala Ala Met Gln Ala Gln Lys Ala Ala Glu Ala Ala Trp Asn Ser Asn
        775             780                 785

ccc cca agg aat aac gcc gaa tta gac cgt ttg tta acc gga gcc gtt    11668
Pro Pro Arg Asn Asn Ala Glu Leu Asp Arg Leu Leu Thr Gly Ala Val
    790             795                 800

att cgt att acg gtg cat gag ggt tta aat tta ata caa gcc gct aat    11716
Ile Arg Ile Thr Val His Glu Gly Leu Asn Leu Ile Gln Ala Ala Asn
805             810                 815                 820

gaa gca gac cta ggt gaa gga gca tcg gta tcc aaa cgt gga cat aat    11764
Glu Ala Asp Leu Gly Glu Gly Ala Ser Val Ser Lys Arg Gly His Asn
                825             830                 835

cga aaa act gga gat tta cag ggg ggc atg ggt aat gaa cct atg tac    11812
Arg Lys Thr Gly Asp Leu Gln Gly Gly Met Gly Asn Glu Pro Met Tyr
                840             845                 850

gca caa gtt cgt aag cca aaa agt cga acg gat aca caa acg act ggg    11860
Ala Gln Val Arg Lys Pro Lys Ser Arg Thr Asp Thr Gln Thr Thr Gly
        855             860                 865

cgt ata act aat cga agt agg gcc cgt tct gca tca aga act gat acg    11908
Arg Ile Thr Asn Arg Ser Arg Ala Arg Ser Ala Ser Arg Thr Asp Thr
        870             875                 880

cga aaa tag ggatataatt acgcagtaac ggtttacccg gtattatgta           11957
Arg Lys
885

taataaataa acgtataaaa gacagtcgtg gtttgtgttt attataaatg tgtattatat 12017

gtcacatatt ataaactgtt taaatagtac cacgtggtat tatgaacagt ttataatcag 12077

ttgctaccaa acaaacccca ttagacggcg ggttttgata aagggaatcg cttatttaaa 12137

ctaaagdattt tactctataa gt atg gag tgt aat tta gga acc gaa cat cct  12189
                       Met Glu Cys Asn Leu Gly Thr Glu His Pro
                               890                 895

agt aca gat acg tgg aat cgt agt aaa acg gaa caa gcg gtt gtg gac    12237
Ser Thr Asp Thr Trp Asn Arg Ser Lys Thr Glu Gln Ala Val Val Asp
        900             905                 910

gca ttt gat gaa tcg ttg ttt ggt gat gta gca tcg gat att gga ttt    12285
Ala Phe Asp Glu Ser Leu Phe Gly Asp Val Ala Ser Asp Ile Gly Phe
        915             920                 925

gaa acg tcg tta tat tca cat gca gtt aaa act gct ccg tct ccg cct    12333
Glu Thr Ser Leu Tyr Ser His Ala Val Lys Thr Ala Pro Ser Pro Pro
    930             935                 940

tgg gta gct agc cct aaa att tta tat caa cag tta ata cgg gat ctt    12381
Trp Val Ala Ser Pro Lys Ile Leu Tyr Gln Gln Leu Ile Arg Asp Leu
945             950                 955                 960

gat ttt tca gaa ggg ccg cgt tta cta tca tgt ctt gaa acc tgg aac    12429
Asp Phe Ser Glu Gly Pro Arg Leu Leu Ser Cys Leu Glu Thr Trp Asn
                965             970                 975
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gag gat tta ttc tca tgt ttt cct att aat gag gac cta tat tcc gat          12477
Glu Asp Leu Phe Ser Cys Phe Pro Ile Asn Glu Asp Leu Tyr Ser Asp
            980                     985                 990

atg atg gtt tta tcc ccg gat cca  gat gac gtt atc tca  acc gtt tca         12525
Met Met Val Leu Ser Pro Asp Pro  Asp Asp Val Ile Ser  Thr Val Ser
            995                 1000                 1005

acc aaa  gac cat gtt gaa atg  ttt aat tta aca acc  cgg ggt tcc            12570
Thr Lys  Asp His Val Glu Met  Phe Asn Leu Thr Thr  Arg Gly Ser
    1010                 1015                 1020

gtt cga  ttg cct agt cca cca  aag caa ccg acg ggg  ctt cca gct            12615
Val Arg  Leu Pro Ser Pro Pro  Lys Gln Pro Thr Gly  Leu Pro Ala
    1025                 1030                 1035

tac gtt  cag gag gtc cag gat  tcg ttt acc gta gaa  cta cgc gcc            12660
Tyr Val  Gln Glu Val Gln Asp  Ser Phe Thr Val Glu  Leu Arg Ala
    1040                 1045                 1050

cgg gaa  gaa gca tac aca aaa  cta cta gtt act tat  tgt aaa tcg            12705
Arg Glu  Glu Ala Tyr Thr Lys  Leu Leu Val Thr Tyr  Cys Lys Ser
    1055                 1060                 1065

att ata  cgt tat ctc caa gga  acg gcg aaa agg acg  aca ata ggt            12750
Ile Ile  Arg Tyr Leu Gln Gly  Thr Ala Lys Arg Thr  Thr Ile Gly
    1070                 1075                 1080

ctt aat  ata caa aac cct gac  cag aaa gct tac acg  caa ctc agg            12795
Leu Asn  Ile Gln Asn Pro Asp  Gln Lys Ala Tyr Thr  Gln Leu Arg
    1085                 1090                 1095

caa agt  att cta ctt aga tat  tat cgt gag gtg gca  agt ttg gcg            12840
Gln Ser  Ile Leu Leu Arg Tyr  Tyr Arg Glu Val Ala  Ser Leu Ala
    1100                 1105                 1110

cgt ctt  ctg tac cta cat tta  tat tta acc gta acg  cgt gaa ttt            12885
Arg Leu  Leu Tyr Leu His Leu  Tyr Leu Thr Val Thr  Arg Glu Phe
    1115                 1120                 1125

tcc tgg  cgt ttg tac gcc agt  caa tct gca cac ccg  gac gtg ttt            12930
Ser Trp  Arg Leu Tyr Ala Ser  Gln Ser Ala His Pro  Asp Val Phe
    1130                 1135                 1140

gcg gct  tta aaa ttc acc tgg  acc gaa cgt cga cag  ttc acg tgt            12975
Ala Ala  Leu Lys Phe Thr Trp  Thr Glu Arg Arg Gln  Phe Thr Cys
    1145                 1150                 1155

gcg ttt  cat cct gta tta tgc  aac cac ggc att gtg  tta tta gaa            13020
Ala Phe  His Pro Val Leu Cys  Asn His Gly Ile Val  Leu Leu Glu
    1160                 1165                 1170

ggg aaa  cca cta aca gcg tct  gcc ttg agg gaa ata  aat tac cgc            13065
Gly Lys  Pro Leu Thr Ala Ser  Ala Leu Arg Glu Ile  Asn Tyr Arg
    1175                 1180                 1185

cgc cga  gaa ctg gga ctg cct  cta gtt aga tgt ggt  ctt gtt gaa            13110
Arg Arg  Glu Leu Gly Leu Pro  Leu Val Arg Cys Gly  Leu Val Glu
    1190                 1195                 1200

gaa aac  aaa tct ccg ttg gtt  caa caa ccc tca ttt  tcg gtt cat            13155
Glu Asn  Lys Ser Pro Leu Val  Gln Gln Pro Ser Phe  Ser Val His
    1205                 1210                 1215
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tta cca  cgg tcg gtg ggt ttt  ctt acc cac cac att  aag cgt aag    13200
Leu Pro  Arg Ser Val Gly Phe  Leu Thr His His Ile  Lys Arg Lys
    1220             1225              1230

tta gac  gca tat gcg gtc aaa  cat cct caa gaa ccg  aga cat gta    13245
Leu Asp  Ala Tyr Ala Val Lys  His Pro Gln Glu Pro  Arg His Val
    1235             1240              1245

cga gcg  gat cat cct tac gca  aaa gtt gtt gaa aat  aga aac tac    13290
Arg Ala  Asp His Pro Tyr Ala  Lys Val Val Glu Asn  Arg Asn Tyr
    1250             1255              1260

ggt agt  agc atc gaa gct atg  att tta gca cct ccg  tcc cca tcc    13335
Gly Ser  Ser Ile Glu Ala Met  Ile Leu Ala Pro Pro  Ser Pro Ser
    1265             1270              1275

gag atc  ctg ccg ggg gac cca  cca cgc cca ccc acg  tgt ggg ttt    13380
Glu Ile  Leu Pro Gly Asp Pro  Pro Arg Pro Pro Thr  Cys Gly Phe
    1280             1285              1290

tta acg  cgt taa acgtcattgg ggtagagggt gtaaataaat tacgaaaacg     13432
Leu Thr  Arg
    1295

tgcatgcgtt ttttattttt acaatgcgcc gtatatggta tgtctgtcat gtgctctaaa  13492

gtcccatata taaaagaagc cccaacgagt gtatgcgtat tgcgtaccgc gaccctggga  13552

tgttttacag gcgcgtttgt ttgtctcggt tataagt atg cag tcg ggt  cat tat  13607
                                        Met Gln Ser Gly  His Tyr
                                                1300

aac cgg agg  caa tcc cgc cga cag  cgg ata tcg tct aat  acc aca    13652
Asn Arg Arg  Gln Ser Arg Arg Gln  Arg Ile Ser Ser Asn  Thr Thr
        1305             1310              1315

gac tcc ccc  cgt cac aca cac gga  aca cgt tat cgg tca  acc aat    13697
Asp Ser Pro  Arg His Thr His Gly  Thr Arg Tyr Arg Ser  Thr Asn
        1320             1325              1330

tgg tat aca  cac cca ccc cag ata  ttg tcc aat tca gaa  aca tta    13742
Trp Tyr Thr  His Pro Pro Gln Ile  Leu Ser Asn Ser Glu  Thr Leu
        1335             1340              1345

gtt gcg gtt  caa gaa cta ctg aac  tcc gag atg gat cag  gac agc    13787
Val Ala Val  Gln Glu Leu Leu Asn  Ser Glu Met Asp Gln  Asp Ser
        1350             1355              1360

agt tct gac  gca tcg gat gat ttt  ccg gga tac gcc tta  cat cat    13832
Ser Ser Asp  Ala Ser Asp Asp Phe  Pro Gly Tyr Ala Leu  His His
        1365             1370              1375

tct aca tat  aat gga tcc gaa caa  aat aca tca act tcc  aga cat    13877
Ser Thr Tyr  Asn Gly Ser Glu Gln  Asn Thr Ser Thr Ser  Arg His
        1380             1385              1390

gaa aat cgc  ata ttt aaa tta acg  gag agg gaa gct aat  gag gaa    13922
Glu Asn Arg  Ile Phe Lys Leu Thr  Glu Arg Glu Ala Asn  Glu Glu
        1395             1400              1405

atc aac atc  aat acg gac gcg atc  gac gac gag gga gag  gcg gag    13967
Ile Asn Ile  Asn Thr Asp Ala Ile  Asp Asp Glu Gly Glu  Ala Glu
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          1410                    1415                    1420

gag gga gag  gcg gag gag gac  gcg  atc gac gac gag  gga  gag gcg      14012
Glu Gly Glu  Ala Glu Glu Asp  Ala  Ile Asp Asp Glu  Gly  Glu Ala
         1425                    1430                    1435

gag gag gga  gag gcg gag gag  gac  gcg att gac gac  gag  gga gag      14057
Glu Glu Gly  Glu Ala Glu Glu  Asp  Ala Ile Asp Asp  Glu  Gly Glu
         1440                    1445                    1450

gcg gag gag  gga gag gcg gag  gag  gac gcg att gac  gac  gag gga      14102
Ala Glu Glu  Gly Glu Ala Glu  Glu  Asp Ala Ile Asp  Asp  Glu Gly
         1455                    1460                    1465

gag gcg gag  gag gga gag gcg  gag  gag gga gag gcg  gag  gag gga      14147
Glu Ala Glu  Glu Gly Glu Ala  Glu  Glu Gly Glu Ala  Glu  Glu Gly
         1470                    1475                    1480

gag gcg gag  gag gac gcg atc  gac  gac gag gga gag  gcg  gag gag      14192
Glu Ala Glu  Glu Asp Ala Ile  Asp  Asp Glu Gly Glu  Ala  Glu Glu
         1485                    1490                    1495

gac gcg gcg  gag gag gac gcg  atc  gac gac gag gga  gag  gcg gag      14237
Asp Ala Ala  Glu Glu Asp Ala  Ile  Asp Asp Glu Gly  Glu  Ala Glu
         1500                    1505                    1510

gag gat tat  ttt tct gta agt  caa  gtt tgc agt cga  gac  gcg gat      14282
Glu Asp Tyr  Phe Ser Val Ser  Gln  Val Cys Ser Arg  Asp  Ala Asp
         1515                    1520                    1525

gag gtt tat  ttt acg tta gac  ccg  gaa ata agt tac  agt  acc gat      14327
Glu Val Tyr  Phe Thr Leu Asp  Pro  Glu Ile Ser Tyr  Ser  Thr Asp
         1530                    1535                    1540

ctt cgc att  gca aag gtt atg  gag  cct gcg gta tca  aag  gaa ctt      14372
Leu Arg Ile  Ala Lys Val Met  Glu  Pro Ala Val Ser  Lys  Glu Leu
         1545                    1550                    1555

aat gta tca  aaa cgt tgt gtt  gaa  cct gtt acc cta  aca  ggc tct      14417
Asn Val Ser  Lys Arg Cys Val  Glu  Pro Val Thr Leu  Thr  Gly Ser
         1560                    1565                    1570

atg tta gcg  cat aat ggg ttt  gat  gag tcc tgg ttt  gct  atg cgc      14462
Met Leu Ala  His Asn Gly Phe  Asp  Glu Ser Trp Phe  Ala  Met Arg
         1575                    1580                    1585

gaa tgt acc  cgt cgc gaa tat  att  acg gtc caa gga  tta  tac gac      14507
Glu Cys Thr  Arg Arg Glu Tyr  Ile  Thr Val Gln Gly  Leu  Tyr Asp
         1590                    1595                    1600

cca att cat  tta cgg tat cag  ttt  gat act tcc cgg  atg  aca ccc      14552
Pro Ile His  Leu Arg Tyr Gln  Phe  Asp Thr Ser Arg  Met  Thr Pro
         1605                    1610                    1615

cca cag att  ttg aga act ata  cca  gcc ctt cct aac  atg  aca ctt      14597
Pro Gln Ile  Leu Arg Thr Ile  Pro  Ala Leu Pro Asn  Met  Thr Leu
         1620                    1625                    1630

ggt gaa ctt  tta ttg att ttt  cct  att gaa ttt atg  gcc  cag cca      14642
Gly Glu Leu  Leu Leu Ile Phe  Pro  Ile Glu Phe Met  Ala  Gln Pro
         1635                    1640                    1645

att tct ata  gaa cgt att tta  gtt  gaa gat gta ttt  tta  gat agg      14687
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Ile Ser Ile  Glu Arg Ile Leu Val  Glu Asp Val Phe Leu  Asp Arg
        1650             1655                1660

cgg gct tcc  agt aaa aca cat aaa  tac ggc ccg cgt tgg  aat tcc        14732
Arg Ala Ser  Ser Lys Thr His Lys  Tyr Gly Pro Arg Trp  Asn Ser
        1665             1670                1675

gtc tac gca  ctt cca tat aat gcg  ggt aaa atg tat gta  caa cac        14777
Val Tyr Ala  Leu Pro Tyr Asn Ala  Gly Lys Met Tyr Val  Gln His
        1680             1685                1690

att cct ggg  ttt tat gac gtg tcc  tta cgt gct gtg ggc  caa gga        14822
Ile Pro Gly  Phe Tyr Asp Val Ser  Leu Arg Ala Val Gly  Gln Gly
        1695             1700                1705

acg gcc att  tgg cat cac atg ata  tta tcc aca gca gca  tgc gct        14867
Thr Ala Ile  Trp His His Met Ile  Leu Ser Thr Ala Ala  Cys Ala
        1710             1715                1720

att tct aat  cgc att tca cat gga  gat gga tta gga ttt  ttg tta        14912
Ile Ser Asn  Arg Ile Ser His Gly  Asp Gly Leu Gly Phe  Leu Leu
        1725             1730                1735

gac gcg gca  att cgt att agc gca  aac tgt att ttt ttg  gga cgt        14957
Asp Ala Ala  Ile Arg Ile Ser Ala  Asn Cys Ile Phe Leu  Gly Arg
        1740             1745                1750

aac gat aat  ttt ggc gtg ggg gat  cca tgt tgg tta gaa  gac cat        15002
Asn Asp Asn  Phe Gly Val Gly Asp  Pro Cys Trp Leu Glu  Asp His
        1755             1760                1765

ctt gcc gga  tta cca cga gaa gcc  gta ccc gac gta ctc  caa gtg        15047
Leu Ala Gly  Leu Pro Arg Glu Ala  Val Pro Asp Val Leu  Gln Val
        1770             1775                1780

aca cag ttg  gtt ttg cca aat cgg  ggt cca acg gtt gcc  att atg        15092
Thr Gln Leu  Val Leu Pro Asn Arg  Gly Pro Thr Val Ala  Ile Met
        1785             1790                1795

cgt ggt ttt  ttt ggg gcg ttg gca  tat tgg ccc gaa cta  aga att        15137
Arg Gly Phe  Phe Gly Ala Leu Ala  Tyr Trp Pro Glu Leu  Arg Ile
        1800             1805                1810

gct ata agt  gaa cca tct aca tct  ttg gtg cga tat gct  acc ggt        15182
Ala Ile Ser  Glu Pro Ser Thr Ser  Leu Val Arg Tyr Ala  Thr Gly
        1815             1820                1825

cac atg gaa  ctt gcc gaa tgg ttt  tta ttt tca cgt aca  cat agt        15227
His Met Glu  Leu Ala Glu Trp Phe  Leu Phe Ser Arg Thr  His Ser
        1830             1835                1840

tta aag cca  caa ttt acc cca acg  gaa cgg gaa atg tta  gcg tca        15272
Leu Lys Pro  Gln Phe Thr Pro Thr  Glu Arg Glu Met Leu  Ala Ser
        1845             1850                1855

ttt ttt acg  ttg tat gtt act ctt  ggt gga gga atg ttg  aac tgg        15317
Phe Phe Thr  Leu Tyr Val Thr Leu  Gly Gly Gly Met Leu  Asn Trp
        1860             1865                1870

atc tgt aga  gca act gca atg tat  tta gct gct cct tac  cat tcc        15362
Ile Cys Arg  Ala Thr Ala Met Tyr  Leu Ala Ala Pro Tyr  His Ser
        1875             1880                1885
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cgt tcg gct   tac atc gcg gtc tgt   gaa tct ctg ccc tat   tac tat     15407
Arg Ser Ala   Tyr Ile Ala Val Cys   Glu Ser Leu Pro Tyr   Tyr Tyr
        1890                1895                1900

atc ccg gtt   aat agt gac ctg tta   tgt gat tta gag gta   tta ctg     15452
Ile Pro Val   Asn Ser Asp Leu Leu   Cys Asp Leu Glu Val   Leu Leu
        1905                1910                1915

tta ggc gag   gtc gac ctc cca act   gtt tgt gaa tcc tac   gca act     15497
Leu Gly Glu   Val Asp Leu Pro Thr   Val Cys Glu Ser Tyr   Ala Thr
        1920                1925                1930

att gca cac   gaa tta acc gga tat   gag gct gtt cgc aca   gca gcc     15542
Ile Ala His   Glu Leu Thr Gly Tyr   Glu Ala Val Arg Thr   Ala Ala
        1935                1940                1945

aca aat ttt   atg ata gag ttt gcc   gat tgt tat aag gaa   agt gag     15587
Thr Asn Phe   Met Ile Glu Phe Ala   Asp Cys Tyr Lys Glu   Ser Glu
        1950                1955                1960

acc gat tta   atg gta agc gcg tac   ctg ggg gcc gtt tta   ttg tta     15632
Thr Asp Leu   Met Val Ser Ala Tyr   Leu Gly Ala Val Leu   Leu Leu
        1965                1970                1975

caa cgg gtg   ttg ggt cat gca aat   ctt ctt ttg ttg ctt   ctc tcc     15677
Gln Arg Val   Leu Gly His Ala Asn   Leu Leu Leu Leu Leu   Leu Ser
        1980                1985                1990

ggt gct gcg   ttg tac gga gga tgt   tca att tac atc ccc   cga ggt     15722
Gly Ala Ala   Leu Tyr Gly Gly Cys   Ser Ile Tyr Ile Pro   Arg Gly
        1995                2000                2005

att tta gat   gca tat aat act tta   atg ttg gca gca agt   cct ctt     15767
Ile Leu Asp   Ala Tyr Asn Thr Leu   Met Leu Ala Ala Ser   Pro Leu
        2010                2015                2020

tac gct cac   caa act tta aca tcc   ttt tgg aaa gac cgc   gat gat     15812
Tyr Ala His   Gln Thr Leu Thr Ser   Phe Trp Lys Asp Arg   Asp Asp
        2025                2030                2035

gca atg caa   act ttg ggg att cga   ccg aca acg gac gtt   tta ccc     15857
Ala Met Gln   Thr Leu Gly Ile Arg   Pro Thr Thr Asp Val   Leu Pro
        2040                2045                2050

aaa gag caa   gac agg ata gtt cag   gca tca cct ata gag   atg aac     15902
Lys Glu Gln   Asp Arg Ile Val Gln   Ala Ser Pro Ile Glu   Met Asn
        2055                2060                2065

ttc cgt ttt   gtg gga ttg gag acc   atc tat ccc cga gaa   cag ccc     15947
Phe Arg Phe   Val Gly Leu Glu Thr   Ile Tyr Pro Arg Glu   Gln Pro
        2070                2075                2080

att ccc tcc   gtg gac cta gcc gaa   aat ctt atg caa tac   agg aat     15992
Ile Pro Ser   Val Asp Leu Ala Glu   Asn Leu Met Gln Tyr   Arg Asn
        2085                2090                2095

gaa att ctg   ggt ttg gat tgg aaa   agc gta gcc atg cat   tta cta     16037
Glu Ile Leu   Gly Leu Asp Trp Lys   Ser Val Ala Met His   Leu Leu
        2100                2105                2110

cga aaa tat   taa gggttgtgat tttttcatt aggatgaaaa gaacgtttcc         16089
Arg Lys Tyr
        2115
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tagccacacc cacaaaggag tttgtaaaat aaaatctctg tttagacctt aaaatttgtt   16149

gtgtgtgttg tgtgggggggt ccgtgaggat cgacctttac aagatataat ttgtccatat   16209

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cgca atg ttt tct cgg ttt  gcg cgt tcc ttt tcc  agc gat gat aga       16255
     Met Phe Ser Arg Phe  Ala Arg Ser Phe Ser  Ser Asp Asp Arg
         2120                   2125

acg cgt aaa tct tat gat  ggt agt tac caa agt  ttt aat gcc ggc        16300
Thr Arg Lys Ser Tyr Asp  Gly Ser Tyr Gln Ser  Phe Asn Ala Gly
2130              2135                   2140

gaa cgt gat ttg ccc aca  cct acc cgg gac tgg  tgt tct att tcc        16345
Glu Arg Asp Leu Pro Thr  Pro Thr Arg Asp Trp  Cys Ser Ile Ser
2145              2150                   2155

caa cgc ata acc agc gag  cgc gtg agg gat gga  tgt ctt att cca        16390
Gln Arg Ile Thr Ser Glu  Arg Val Arg Asp Gly  Cys Leu Ile Pro
2160              2165                   2170

acg ccc ggc gag gct ttg  gag acg gcg gta aag  gct tta tct gaa        16435
Thr Pro Gly Glu Ala Leu  Glu Thr Ala Val Lys  Ala Leu Ser Glu
2175              2180                   2185

aag acc gac agc cta aca  tcg ccg gtt tta caa  agt acc gaa aga        16480
Lys Thr Asp Ser Leu Thr  Ser Pro Val Leu Gln  Ser Thr Glu Arg
2190              2195                   2200

cac agt gtt ctg ctt gga  tta cac cat aat aat  gtt cct gaa tcg        16525
His Ser Val Leu Leu Gly  Leu His His Asn Asn  Val Pro Glu Ser
2205              2210                   2215

ttg gtg gtc tcg tgt atg  tct aac gat gtt cat  gac ggg ttt atg        16570
Leu Val Val Ser Cys Met  Ser Asn Asp Val His  Asp Gly Phe Met
2220              2225                   2230

cag cgt tat atg gaa aca  att caa aga tgt ttg  gat gac ctg aaa        16615
Gln Arg Tyr Met Glu Thr  Ile Gln Arg Cys Leu  Asp Asp Leu Lys
2235              2240                   2245

ctt tct ggg gat gga ctt  tgg tgg gtt tat gaa  aat aca tat tgg        16660
Leu Ser Gly Asp Gly Leu  Trp Trp Val Tyr Glu  Asn Thr Tyr Trp
2250              2255                   2260

cag tat ctc aaa tac acc  aca gga gcc gag gta  ccg gtg act tca        16705
Gln Tyr Leu Lys Tyr Thr  Thr Gly Ala Glu Val  Pro Val Thr Ser
2265              2270                   2275

gag aag gta aat aaa aag  tct aaa tcc acg gtt  ttg ttg ttt tca        16750
Glu Lys Val Asn Lys Lys  Ser Lys Ser Thr Val  Leu Leu Phe Ser
2280              2285                   2290

tcc gta gtt gcc aat aaa  cca ata tcc aga cat  cct ttt aaa tct        16795
Ser Val Val Ala Asn Lys  Pro Ile Ser Arg His  Pro Phe Lys Ser
2295              2300                   2305

aaa gtt ata aat tcg gat  tac cgg gga ata tgt  cag gag cta cgt        16840
Lys Val Ile Asn Ser Asp  Tyr Arg Gly Ile Cys  Gln Glu Leu Arg
2310              2315                   2320

gag gcg tta gga gct gtg  caa aag tat atg tat  ttt atg cgt cca        16885
Glu Ala Leu Gly Ala Val  Gln Lys Tyr Met Tyr  Phe Met Arg Pro
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2325                      2330                      2335

gat  gat  cct  aca  aac  ccc  agc  ccg  gat  aca  aga  ata  cgt  gta  caa      16930
Asp  Asp  Pro  Thr  Asn  Pro  Ser  Pro  Asp  Thr  Arg  Ile  Arg  Val  Gln
2340                     2345                      2350

gaa  att  gcg  gct  tac  acg  gct  act  ggc  tac  ggg  tgg  atg  tta  tgg      16975
Glu  Ile  Ala  Ala  Tyr  Thr  Ala  Thr  Gly  Tyr  Gly  Trp  Met  Leu  Trp
2355                     2360                      2365

ttc  ttg  gac  gtt  gtg  gac  gcc  agg  gta  tgt  cgc  cat  ctc  aaa  ctt      17020
Phe  Leu  Asp  Val  Val  Asp  Ala  Arg  Val  Cys  Arg  His  Leu  Lys  Leu
2370                     2375                      2380

caa  ttt  cga  cgg  att  cga  ggg  ccg  cgc  gcg  tct  gtt  att  cca  gat      17065
Gln  Phe  Arg  Arg  Ile  Arg  Gly  Pro  Arg  Ala  Ser  Val  Ile  Pro  Asp
2385                     2390                      2395

gat  ttg  ctt  aga  cga  cat  tta  aaa  acg  ggt  cct  gcg  gtc  tca  gcg      17110
Asp  Leu  Leu  Arg  Arg  His  Leu  Lys  Thr  Gly  Pro  Ala  Val  Ser  Ala
2400                     2405                      2410

ggc  aca  gga  gtt  gcg  ttt  att  tta  gca  gca  aca  act  gcc  agc  gct      17155
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2415                     2420                      2425

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Leu  Thr  Ala  Leu  Leu  Arg  Ile  Ser  Val  Leu  Trp  Arg  Lys  Glu  Glu
2430                     2435                      2440

tgg  cgg  gat  ggt  tta  aat  gga  acc  gca  gct  gca  att  gtt  gcg  gcg      17245
Trp  Arg  Asp  Gly  Leu  Asn  Gly  Thr  Ala  Ala  Ala  Ile  Val  Ala  Ala
2445                     2450                      2455

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Val  Glu  Leu  Ile  Thr  Leu  Leu  His  His  His  Phe  Gln  Tyr  Leu  Ile
2460                     2465                      2470

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Asn  Met  Met  Leu  Ile  Gly  Tyr  Ala  Cys  Trp  Gly  Asp  Gly  Gly  Leu
2475                     2480                      2485

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Asn  Asp  Pro  Tyr  Ile  Leu  Lys  Ala  Leu  Arg  Ala  Gln  Gly  Arg  Phe
2490                     2495                      2500

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Leu  Tyr  Phe  Ala  Gly  Gln  Leu  Val  Arg  Thr  Met  Ser  Thr  His  Ser
2505                     2510                      2515

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Trp  Val  Val  Leu  Glu  Thr  Ser  Thr  His  Met  Trp  Phe  Ser  Arg  Ala
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Val  Ala  Gln  Ser  Ile  Leu  Ala  His  Gly  Gly  Lys  Pro  Thr  Lys  Tyr
2535                     2540                      2545

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Tyr  Ala  Gln  Val  Leu  Ala  Ala  Ser  Lys  Arg  Tyr  Thr  Pro  Leu  His
2550                     2555                      2560

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aat Asn 2595	ttg Leu	gaa Glu	tgt Cys	gtc Val	tgt Cys 2600	tta Leu	acg Thr	gga Gly	aat Asn	tat Tyr 2605	tta Leu	tct Ser	gac Asp	gac Asp	17695

gta Val 2610	aat Asn	gca Ala	agt Ser	tcg Ser	cat His 2615	gta Val	att Ile	aat Asn	aca Thr	gaa Glu 2620	gca Ala	ccg Pro	tta Leu	aac Asn	17740

agt Ser 2625	ata Ile	gca Ala	ccc Pro	gat Asp	aca Thr 2630	aat Asn	aga Arg	cag Gln	cgg Arg	act Thr 2635	tct Ser	cgc Arg	gtt Val	tta Leu	17785

gtt Val 2640	cgt Arg	cca Pro	gac Asp	acg Thr	ggt Gly 2645	ttg Leu	gat Asp	gta Val	act Thr	gtc Val 2650	cga Arg	aaa Lys	aac Asn	cac His	17830

tgt Cys 2655	ctg Leu	gac Asp	ata Ile	ggc Gly	cat His 2660	acg Thr	gac Asp	ggt Gly	agt Ser	cca Pro 2665	gtt Val	gac Asp	cca Pro	acg Thr	17875

tat Tyr 2670	cct Pro	gat Asp	cat His	tac Tyr	acc Thr 2675	cgg Arg	ata Ile	aag Lys	gcg Ala	gaa Glu 2680	tat Tyr	gaa Glu	ggt Gly	ccg Pro	17920

gtt Val 2685	cgg Arg	gat Asp	gaa Glu	tca Ser	aac Asn 2690	aca Thr	atg Met	ttt Phe	gac Asp	caa Gln 2695	aga Arg	tcg Ser	gat Asp	tta Leu	17965

cgt Arg 2700	cac His	ata Ile	gaa Glu	acc Thr	caa Gln 2705	gca Ala	tct Ser	tta Leu	aat Asn	gat Asp 2710	cac His	gta Val	tat Tyr	gaa Glu	18010

aat Asn 2715	ata Ile	cca Pro	ccc Pro	aag Lys	gaa Glu 2720	gtg Val	ggt Gly	ttt Phe	aac Asn	tca Ser 2725	tct Ser	tca Ser	gac Asp	ctg Leu	18055

gat Asp 2730	gtg Val	gat Asp	agc Ser	ctt Leu	aac Asn 2735	ggg Gly	tac Tyr	acc Thr	tcc Ser	gga Gly 2740	gac Asp	atg Met	cat His	aca Thr	18100

gac Asp 2745	gat Asp	gac Asp	tta Leu	tca Ser	cca Pro 2750	gat Asp	ttt Phe	ata Ile	ccc Pro	aac Asn 2755	gac Asp	gtt Val	ccc Pro	gtt Val	18145

aga Arg 2760	tgt Cys	aaa Lys	acc Thr	acg Thr	gtt Val 2765	acg Thr	ttt Phe	agg Arg	aaa Lys	aat Asn 2770	acg Thr	cct Pro	aag Lys	agt Ser	18190

cat His 2775	cat His	taa	gtacagcggt	taatagatag	ttatggacta	ggcactttgg	18239

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                        Met Gly Asp Leu Ser Cys Trp Thr Lys Val
                                     2780   2785

ccg ggt ttt acg tta acc ggc gaa ctt cag tac tta aaa caa gtg   18515
Pro Gly Phe Thr Leu Thr Gly Glu Leu Gln Tyr Leu Lys Gln Val
         2790   2795   2800

gat gat att tta agg tat gga gtt cgg aaa cgc gat cga aca gga   18560
Asp Asp Ile Leu Arg Tyr Gly Val Arg Lys Arg Asp Arg Thr Gly
         2805   2810   2815

atc gga acg tta tct tta ttt gga atg caa gct cga tac aat ttg   18605
Ile Gly Thr Leu Ser Leu Phe Gly Met Gln Ala Arg Tyr Asn Leu
         2820   2825   2830

cga aat gaa ttt cct ctt tta act aca aag cgt gtt ttt tgg agg   18650
Arg Asn Glu Phe Pro Leu Leu Thr Thr Lys Arg Val Phe Trp Arg
         2835   2840   2845

gcc gtc gtg gaa gag ttg tta tgg ttt atc cgc ggg tca acc gat   18695
Ala Val Val Glu Glu Leu Leu Trp Phe Ile Arg Gly Ser Thr Asp
         2850   2855   2860

tcc aaa gaa ctc gcc gct aaa gat ata cac ata tgg gat ata tac   18740
Ser Lys Glu Leu Ala Ala Lys Asp Ile His Ile Trp Asp Ile Tyr
         2865   2870   2875

gga tcg agc aaa ttt cta aat agg aat ggc ttc cat aaa aga cac   18785
Gly Ser Ser Lys Phe Leu Asn Arg Asn Gly Phe His Lys Arg His
         2880   2885   2890

acg ggg gac ctt ggc ccc att tac ggc ttc cag tgg aga cat ttt   18830
Thr Gly Asp Leu Gly Pro Ile Tyr Gly Phe Gln Trp Arg His Phe
         2895   2900   2905

gga gcg gaa tat aaa gac tgt caa tca aac tat tta cag caa gga   18875
Gly Ala Glu Tyr Lys Asp Cys Gln Ser Asn Tyr Leu Gln Gln Gly
         2910   2915   2920

atc gat cag ctg caa act gtt ata gat aca att aaa aca aac cca   18920
Ile Asp Gln Leu Gln Thr Val Ile Asp Thr Ile Lys Thr Asn Pro
         2925   2930   2935

gaa agc cga cga atg att ata tcg tct tgg aat cca aag gat atc   18965
Glu Ser Arg Arg Met Ile Ile Ser Ser Trp Asn Pro Lys Asp Ile
         2940   2945   2950

ccc tta atg gta cta cct cca tgt cac acg tta tgt cag ttt tac   19010
Pro Leu Met Val Leu Pro Pro Cys His Thr Leu Cys Gln Phe Tyr
         2955   2960   2965

gtt gca aac ggt gaa tta tcc tgc caa gta tac cag aga tcg ggg   19055
Val Ala Asn Gly Glu Leu Ser Cys Gln Val Tyr Gln Arg Ser Gly
         2970   2975   2980

gat atg ggc ctt ggg gta ccg ttc aac att gct gga tat gca ctt   19100
Asp Met Gly Leu Gly Val Pro Phe Asn Ile Ala Gly Tyr Ala Leu
         2985   2990   2995

ctt acc tac ata gta gcg cat gtt aca gga ctt aaa acc gga gat   19145
                                   Page 38

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Leu Thr Tyr Ile  Val Ala His Val Thr  Gly Leu Lys Thr Gly  Asp
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        3015                  3020              3025

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Asp Ala Leu Lys  Val Gln Leu Ala Arg  Ser Pro Lys Pro Phe  Pro
        3030                  3035              3040

tgc ctt aaa att  att cga aat gta aca  gat ata aac gac ttt  aaa      19280
Cys Leu Lys Ile  Ile Arg Asn Val Thr  Asp Ile Asn Asp Phe  Lys
        3045                  3050              3055

tgg gac gat ttt  cag ctt gat gga tat  aat cca cac ccc ccc  cta      19325
Trp Asp Asp Phe  Gln Leu Asp Gly Tyr  Asn Pro His Pro Pro  Leu
        3060                  3065              3070

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Lys Met Glu Met  Ala Leu
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Page 40

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                                    Met Gly Leu  Phe Gly Leu Thr
                                                  3080
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Arg  Phe Ile His Glu His  Lys Leu Val Lys Pro  Ser Ile Ile Ser
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Thr Pro Pro Gly Val Leu  Thr Pro Val Ala Val  Asp Val Trp Asn
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gtc atg tac aca ttg ttg  gaa cgt tta tac cct  gtg ggt aaa cgc      24304
Val Met Tyr Thr Leu Leu  Glu Arg Leu Tyr Pro  Val Gly Lys Arg
3115              3120              3125

gag aat tta cac gga cca  tct gta acg ata cat  tgt ctt gga gtc      24349
Glu Asn Leu His Gly Pro  Ser Val Thr Ile His  Cys Leu Gly Val
3130              3135              3140

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3160              3165              3170

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Ile Met Ser Arg Ala Met  Asn His Asp Glu Arg  Gly Thr Ser Asp
3175              3180              3185

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Leu Thr Arg Val Leu Leu  Ser Ser Asn Thr Ser  Cys Ser Ile Lys
3190              3195              3200

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Tyr Asn Lys Thr Ser Glu  Thr Tyr Asp Ser Val  Phe Arg Asn Ser
3205              3210              3215

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Ser Thr Ser Cys Ile Pro  Ser Glu Glu Asn Lys  Ser Gln Asp Met
3220              3225              3230

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Phe Leu Asp Gly Cys Pro  Arg Gln Thr Asp Lys  Thr Ile Cys Leu
3235              3240              3245

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Arg Asp Gln Asn Val Cys  Ser Leu Thr Ser Thr  Met Pro Ser Arg
3250              3255              3260

gga cat cct aac cat cga  tta tat cac aaa ttg  tgt gca agt ctt      24754
Gly His Pro Asn His Arg  Leu Tyr His Lys Leu  Cys Ala Ser Leu
3265              3270              3275

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Ile Arg Trp Met Gly Tyr  Ala Tyr Val Glu Ala  Val Asp Ile Glu
3280              3285              3290

gcg gac gag gca tgt gca  aac tta ttt cat acg  cgt aca gtg gct      24844
Ala Asp Glu Ala Cys Ala  Asn Leu Phe His Thr  Arg Thr Val Ala
3295              3300              3305

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Leu Val Tyr Thr Thr Asp  Thr Asp Leu Leu Phe  Met Gly Cys Asp
3310              3315              3320

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Ile Leu Leu Asp Ala Ile  Pro Met Phe Ala Pro  Val Val Arg Cys
3325              3330              3335
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3385                 3390                3395

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Trp  Arg  His  Gly  Glu  Val  Phe  Lys  Ser  Leu  Thr  Val  Ala  Thr  Ser
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Pro  Pro  Ser  Ser  Ser  Pro  Leu  Asp  Asn  Leu  Glu  Arg  Ala  Phe  Val
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Glu  His  Ile  Ile  Ala  Val  Val  Thr  Pro  Leu  Thr  Arg  Gly  Arg  Leu
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3475                 3480                3485

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                         Met Glu Glu  Pro Ile Cys Tyr Asp  Thr
                             3535                      3540

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Gln Lys Leu Leu  Asp Asp Leu Ser Asn  Leu Lys Val Gln Glu  Ala
            3545                 3550                 3555

gac aac gaa aga  cca tgg tca cca gag  aaa aca gaa atc gcc  aga    30875
Asp Asn Glu Arg  Pro Trp Ser Pro Glu  Lys Thr Glu Ile Ala  Arg
            3560                 3565                 3570

gtt aag gta gtt  aag ttt tta cga tct  acc cag aaa att cca  gct    30920
Val Lys Val Val  Lys Phe Leu Arg Ser  Thr Gln Lys Ile Pro  Ala
            3575                 3580                 3585

aaa cat ttt att  cag ata tgg gaa ccc  ctg cat tct aat atc  tgt    30965
Lys His Phe Ile  Gln Ile Trp Glu Pro  Leu His Ser Asn Ile  Cys
            3590                 3595                 3600

ttt gta tat tcc  aat aca ttt ttg gcg  gag gct gct ttc acg  gcc    31010
Phe Val Tyr Ser  Asn Thr Phe Leu Ala  Glu Ala Ala Phe Thr  Ala
            3605                 3610                 3615

gaa aat tta ccc  gga ctg ttg ttt tgg  aga cta gat cta gac  tgg    31055
Glu Asn Leu Pro  Gly Leu Leu Phe Trp  Arg Leu Asp Leu Asp  Trp
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Glu Asn Leu Pro   Gly Leu Leu Phe Trp   Arg Leu Asp Leu   Asp   Trp
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Thr Ile Glu Glu   Pro Gly Asn Ser Leu   Lys Ile Leu Thr Gln   Leu
         3635                  3640                  3645

tca agt gta gta   caa gat tcc gag acg   tta cat cgt tta tcg   gcc            31145
Ser Ser Val Val   Gln Asp Ser Glu Thr   Leu His Arg Leu Ser   Ala
         3650                  3655                  3660

aat aaa tta cga   acc tcg tct aaa ttt   gga ccc gtt tcg ata   cac            31190
Asn Lys Leu Arg   Thr Ser Ser Lys Phe   Gly Pro Val Ser Ile   His
         3665                  3670                  3675

ttc att ata acg   gac tgg ata aat atg   tac gag gtc gcc tta   aag            31235
Phe Ile Ile Thr   Asp Trp Ile Asn Met   Tyr Glu Val Ala Leu   Lys
         3680                  3685                  3690

gat gca aca aca   gcc att gaa tca cca   ttc act cac gct cgt   att            31280
Asp Ala Thr Thr   Ala Ile Glu Ser Pro   Phe Thr His Ala Arg   Ile
         3695                  3700                  3705

gga atg ttg gaa   agc gcc att gca gct   tta aca caa cat aaa   ttt            31325
Gly Met Leu Glu   Ser Ala Ile Ala Ala   Leu Thr Gln His Lys   Phe
         3710                  3715                  3720

gcg atc att tac   gat atg cca ttt gtt   caa gag ggg att cgt   gtt            31370
Ala Ile Ile Tyr   Asp Met Pro Phe Val   Gln Glu Gly Ile Arg   Val
         3725                  3730                  3735

tta aca caa tat   gca gga tgg ctt ctt   ccg ttt aat gtt atg   tgg            31415
Leu Thr Gln Tyr   Ala Gly Trp Leu Leu   Pro Phe Asn Val Met   Trp
         3740                  3745                  3750

aat cag att caa   aat agc tca ctc act   cct cta aca cga gcc   ctt            31460
Asn Gln Ile Gln   Asn Ser Ser Leu Thr   Pro Leu Thr Arg Ala   Leu
         3755                  3760                  3765

ttt ata atc tgt   atg att gat gaa tat   ctc acg gaa acg cca   gta            31505
Phe Ile Ile Cys   Met Ile Asp Glu Tyr   Leu Thr Glu Thr Pro   Val
         3770                  3775                  3780

cat agc ata tca   gaa tta ttt gca gat   act gta aat tta att   aaa            31550
His Ser Ile Ser   Glu Leu Phe Ala Asp   Thr Val Asn Leu Ile   Lys
         3785                  3790                  3795

gat gag gcg ttc   gta tcc atc gaa gaa   gcg gta acg aat cca   cga            31595
Asp Glu Ala Phe   Val Ser Ile Glu Glu   Ala Val Thr Asn Pro   Arg
         3800                  3805                  3810

acg gtg cac gag   tca cga att tcc tca   gct ctg gct tat cga   gac            31640
Thr Val His Glu   Ser Arg Ile Ser Ser   Ala Leu Ala Tyr Arg   Asp
         3815                  3820                  3825

cct tat gtt ttt   gag aca tcc ccg gga   atg ctt gct agg aga   ctt            31685
Pro Tyr Val Phe   Glu Thr Ser Pro Gly   Met Leu Ala Arg Arg   Leu
         3830                  3835                  3840

aga tta gac aat   ggt ata tgg gaa agc   aac ctc tta tcg ttg   tcc            31730
Arg Leu Asp Asn   Gly Ile Trp Glu Ser   Asn Leu Leu Ser Leu   Ser
         3845                  3850                  3855
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acc ccc gga att  cat att gag gcg  ctg tta cat tta  cta aac tcc        31775
Thr Pro Gly Ile  His Ile Glu Ala  Leu Leu His Leu  Leu Asn Ser
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gac ccg gaa gcg  gaa acc aca tct  gga agt aat gta  gca gaa cac        31820
Asp Pro Glu Ala  Glu Thr Thr Ser  Gly Ser Asn Val  Ala Glu His
            3875               3880               3885

acc cgt ggc att  tgg gaa aag gtt  cag gct agt aca  tcg cct agt        31865
Thr Arg Gly Ile  Trp Glu Lys Val  Gln Ala Ser Thr  Ser Pro Ser
            3890               3895               3900

atg tta ata agc  acc ctt gcc gaa  tcc ggg ttt aca  aga ttt tca        31910
Met Leu Ile Ser  Thr Leu Ala Glu  Ser Gly Phe Thr  Arg Phe Ser
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tgc aaa ttg cta  cgt cgg ttt att  gct cac cac aca  ctc gcc ggt        31955
Cys Lys Leu Leu  Arg Arg Phe Ile  Ala His His Thr  Leu Ala Gly
            3920               3925               3930

ttt att cac gga  agc gtt gta gca  gac gag cat att  aca gat ttc        32000
Phe Ile His Gly  Ser Val Val Ala  Asp Glu His Ile  Thr Asp Phe
            3935               3940               3945

caa caa aca cta  gga tgt ctc gct  tta gtg ggt gga  ctg gca tac        32045
Gln Gln Thr Leu  Gly Cys Leu Ala  Leu Val Gly Gly  Leu Ala Tyr
            3950               3955               3960

caa tta gtg gaa  acg tac gct cct  act acc gag tat  gtg tta aca        32090
Gln Leu Val Glu  Thr Tyr Ala Pro  Thr Thr Glu Tyr  Val Leu Thr
            3965               3970               3975

tat aca cgg aca  gta aac gag acc  gaa aaa cgg tat  gaa acg cta        32135
Tyr Thr Arg Thr  Val Asn Glu Thr  Glu Lys Arg Tyr  Glu Thr Leu
            3980               3985               3990

tta ccc gcc tta  gga tta cca ccg  gga ggc ctg gga  caa att atg        32180
Leu Pro Ala Leu  Gly Leu Pro Pro  Gly Gly Leu Gly  Gln Ile Met
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cgg cgc tgt ttt  gct cca cga ccc  ctt att gaa agt  ata caa gcg        32225
Arg Arg Cys Phe  Ala Pro Arg Pro  Leu Ile Glu Ser  Ile Gln Ala
            4010               4015               4020

aca cgc gta ata  cta ctt aat gaa  att tca cat gca  gaa gct aga        32270
Thr Arg Val Ile  Leu Leu Asn Glu  Ile Ser His Ala  Glu Ala Arg
            4025               4030               4035

gag aca aca tat  ttt aag caa aca  cat aat caa tcc  tca ggt gcg        32315
Glu Thr Thr Tyr  Phe Lys Gln Thr  His Asn Gln Ser  Ser Gly Ala
            4040               4045               4050

tta tta cca caa  gca gga caa agt  gcc gta cgc gaa  gcc gta cta        32360
Leu Leu Pro Gln  Ala Gly Gln Ser  Ala Val Arg Glu  Ala Val Leu
            4055               4060               4065

acc tgg ttt gac  cta cgt atg gat  tca aga tgg ggt  att act ccc        32405
Thr Trp Phe Asp  Leu Arg Met Asp  Ser Arg Trp Gly  Ile Thr Pro
            4070               4075               4080

ccg gtg gat gtg  ggt atg aca cct  cct att tgt gtt  gat cca ccg        32450
Pro Val Asp Val  Gly Met Thr Pro  Pro Ile Cys Val  Asp Pro Pro
            4085               4090               4095
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Ala Thr Gly Leu  Glu Ala Val Met Ile  Thr Glu Ala Leu Lys  Ile
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gca tat cct acc  gaa tat aat cgc tct  agc gtg ttt gtg gaa  ccg    32540
Ala Tyr Pro Thr  Glu Tyr Asn Arg Ser  Ser Val Phe Val Glu  Pro
            4115                  4120                  4125

tcg ttt gtg cct  tat att att gca aca  agc acg ctt gat gcc  ctt    32585
Ser Phe Val Pro  Tyr Ile Ile Ala Thr  Ser Thr Leu Asp Ala  Leu
            4130                  4135                  4140

tcg gca aca ata  gct ttg tct ttt gat  aca cgg gga ata cag  caa    32630
Ser Ala Thr Ile  Ala Leu Ser Phe Asp  Thr Arg Gly Ile Gln  Gln
            4145                  4150                  4155

gcc ttg tct att  ctt cag tgg gct cgc  gat tat gga tcc gga  acc    32675
Ala Leu Ser Ile  Leu Gln Trp Ala Arg  Asp Tyr Gly Ser Gly  Thr
            4160                  4165                  4170

gtg ccc aat gca  gat gga tat cgc aca  aaa cta tct gct ctt  ata    32720
Val Pro Asn Ala  Asp Gly Tyr Arg Thr  Lys Leu Ser Ala Leu  Ile
            4175                  4180                  4185

aca ata tta gaa  cct ttt acc cgt aca  cac ccc cca gta ctt  tta    32765
Thr Ile Leu Glu  Pro Phe Thr Arg Thr  His Pro Pro Val Leu  Leu
            4190                  4195                  4200

cca tct cac gtt  tct act ata gat tcc  ctt ata tgc gaa ctt  cat    32810
Pro Ser His Val  Ser Thr Ile Asp Ser  Leu Ile Cys Glu Leu  His
            4205                  4210                  4215

cgg act gtt ggc  att gcc gtt gac ctg  ctt ccc cag cac gtc  cgt    32855
Arg Thr Val Gly  Ile Ala Val Asp Leu  Leu Pro Gln His Val  Arg
            4220                  4225                  4230

cct ttg gtt cct  gac cgt cct tct att  aca aat agc gtt ttt  tta    32900
Pro Leu Val Pro  Asp Arg Pro Ser Ile  Thr Asn Ser Val Phe  Leu
            4235                  4240                  4245

gca act ctc tat  tat gat gaa ctt tac  ggt cgt tgg acc cga  ctg    32945
Ala Thr Leu Tyr  Tyr Asp Glu Leu Tyr  Gly Arg Trp Thr Arg  Leu
            4250                  4255                  4260

gat aaa aca tcg  cag gcg ttg gtt gaa  aat ttt aca tcc aac  gcg    32990
Asp Lys Thr Ser  Gln Ala Leu Val Glu  Asn Phe Thr Ser Asn  Ala
            4265                  4270                  4275

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Leu Val Val Ser  Arg Tyr Met Leu Met  Leu Gln Lys Phe Phe  Ala
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tgt cgt ttt tat  cca acg cca gat ctt  cag gct gtt ggt atc  tgt    33080
Cys Arg Phe Tyr  Pro Thr Pro Asp Leu  Gln Ala Val Gly Ile  Cys
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Asn Pro Lys Val  Glu Arg Asp Glu Gln  Phe Gly Val Trp Arg  Leu
            4310                  4315                  4320

aac gat ctt gct  gat gcg gtt ggt cat  att gtt ggg aca ata  caa    33170
Asn Asp Leu Ala  Asp Ala Val Gly His  Ile Val Gly Thr Ile  Gln
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Gly Ile Arg Thr   Gln Met Arg Val Gly   Ile Ser Ser Leu Arg   Thr
                4340                      4345                      4350

att atg gcc gat   gct tcc tca gcc ctt   agg gaa tgt gaa aat   tta      33260
Ile Met Ala Asp   Ala Ser Ser Ala Leu   Arg Glu Cys Glu Asn   Leu
                4355                      4360                      4365

atg act aaa acc   tcc act tct gct att   ggg cct ctt ttt tca   acg      33305
Met Thr Lys Thr   Ser Thr Ser Ala Ile   Gly Pro Leu Phe Ser   Thr
                4370                      4375                      4380

atg gct tcc cgg   tat gca cgg ttt aca   cag gat caa atg gac   att      33350
Met Ala Ser Arg   Tyr Ala Arg Phe Thr   Gln Asp Gln Met Asp   Ile
                4385                      4390                      4395

tta atg cgt gtt   gac aaa cta aca aca   gga gaa aat ata ccc   ggt      33395
Leu Met Arg Val   Asp Lys Leu Thr Thr   Gly Glu Asn Ile Pro   Gly
                4400                      4405                      4410

ctt gca aat gta   gag att ttt tta aat   agg tgg gaa cga ata   gca      33440
Leu Ala Asn Val   Glu Ile Phe Leu Asn   Arg Trp Glu Arg Ile   Ala
                4415                      4420                      4425

aca gct tgt agg   cat gcc acg gca gtc   ccg tcg gcc gaa tct   att      33485
Thr Ala Cys Arg   His Ala Thr Ala Val   Pro Ser Ala Glu Ser   Ile
                4430                      4435                      4440

gca acc gtg tgt   aat gaa ttg agg cgc   ggt tta aaa aat ata   caa      33530
Ala Thr Val Cys   Asn Glu Leu Arg Arg   Gly Leu Lys Asn Ile   Gln
                4445                      4450                      4455

gag gat cgt gta   aat gcc cca acc tca   tat atg agt cac gcc   cga      33575
Glu Asp Arg Val   Asn Ala Pro Thr Ser   Tyr Met Ser His Ala   Arg
                4460                      4465                      4470

aat ctg gaa gat   cac aag gca gca gtt   tca ttc gtt atg gac   tcc      33620
Asn Leu Glu Asp   His Lys Ala Ala Val   Ser Phe Val Met Asp   Ser
                4475                      4480                      4485

agg caa cag ttt   att gtg gat tct gga   cct cag atg ggc gcg   gtt      33665
Arg Gln Gln Phe   Ile Val Asp Ser Gly   Pro Gln Met Gly Ala   Val
                4490                      4495                      4500

tta act tca caa   tgt aat ata gga aca   tgg gag aat gta aat   gca      33710
Leu Thr Ser Gln   Cys Asn Ile Gly Thr   Trp Glu Asn Val Asn   Ala
                4505                      4510                      4515

acg ttt tta cat   gat aat gtt aaa ata   acg aca acg gtc aga   gac      33755
Thr Phe Leu His   Asp Asn Val Lys Ile   Thr Thr Thr Val Arg   Asp
                4520                      4525                      4530

gta att tca gag   gct ccg acg ctg ata   ata gga caa aga tgg   ctt      33800
Val Ile Ser Glu   Ala Pro Thr Leu Ile   Ile Gly Gln Arg Trp   Leu
                4535                      4540                      4545

cgt cca gat gag   att tta tct aat gta   gat ttg cgt ctt ggc   gta      33845
Arg Pro Asp Glu   Ile Leu Ser Asn Val   Asp Leu Arg Leu Gly   Val
                4550                      4555                      4560

ccc ggg aat aca   agt ggg agt gac cct   taa tataaacag gcgtgtttat      33895
Pro Gly Asn Thr   Ser Gly Ser Asp Pro
```

Pro Gly Asn Thr Ser Gly Ser Asp Pro
              4565   4570

gtacattaaa gtatttgtgg tttttattga ctgggcgttt cgtttgtata acgctgttgt   33955

tgctagtatt ttcataacct cctaggtttt tggagctaca cgtgcttatt caacgctctt   34015

tgggatttga atcatcgtaa acgtagcgtc cctaccagtt gagcgcgtaa ttttcgtaag   34075

caataaa atg gat ata att ccg cct ata gct gtc act gtt gcg gga gtg   34124
        Met Asp Ile Ile Pro Pro Ile Ala Val Thr Val Ala Gly Val
                        4575   4580

gga agc cgt aat caa ttt gac ggt gcc ctg gga ccg gcg tca ggt   34169
Gly Ser Arg Asn Gln Phe Asp Gly Ala Leu Gly Pro Ala Ser Gly
4585   4590   4595

ctg tca tgt tta aga aca tct tta tcg ttt ttg cat atg aca tat   34214
Leu Ser Cys Leu Arg Thr Ser Leu Ser Phe Leu His Met Thr Tyr
4600   4605   4610

gcg cat gga att aat gca acc ctg tca tca gac atg att gat gga   34259
Ala His Gly Ile Asn Ala Thr Leu Ser Ser Asp Met Ile Asp Gly
4615   4620   4625

tgt tta caa gag ggt gca gca tgg act acg gat ctg tct aat atg   34304
Cys Leu Gln Glu Gly Ala Ala Trp Thr Thr Asp Leu Ser Asn Met
4630   4635   4640

ggg agg ggt gtc cca gat atg tgt gct ctt gtt gat ctc ccc aat   34349
Gly Arg Gly Val Pro Asp Met Cys Ala Leu Val Asp Leu Pro Asn
4645   4650   4655

cga att tca tat att aaa ctg ggg gac act acc agt acg tgc tgc   34394
Arg Ile Ser Tyr Ile Lys Leu Gly Asp Thr Thr Ser Thr Cys Cys
4660   4665   4670

gtt ttg tct aga ata tac ggc gat agc cat ttt ttt acc gtt cca   34439
Val Leu Ser Arg Ile Tyr Gly Asp Ser His Phe Phe Thr Val Pro
4675   4680   4685

gac gag ggt ttt atg tgc aca caa att ccc gct aga gcg ttt ttc   34484
Asp Glu Gly Phe Met Cys Thr Gln Ile Pro Ala Arg Ala Phe Phe
4690   4695   4700

gat gat gtg tgg atg gga cgt gaa gag tcg tat aca att ata act   34529
Asp Asp Val Trp Met Gly Arg Glu Glu Ser Tyr Thr Ile Ile Thr
4705   4710   4715

gta gac tca acg gga atg gcc atc tat cgt cag gga aac ata tct   34574
Val Asp Ser Thr Gly Met Ala Ile Tyr Arg Gln Gly Asn Ile Ser
4720   4725   4730

ttt att ttt gat cca cat ggc cat ggg act ata gga cag gct gta   34619
Phe Ile Phe Asp Pro His Gly His Gly Thr Ile Gly Gln Ala Val
4735   4740   4745

gtt gtt cgg gtg aat acc acg gat gtg tac tct tat atc gca tcg   34664
Val Val Arg Val Asn Thr Thr Asp Val Tyr Ser Tyr Ile Ala Ser
4750   4755   4760

gag tat acc cac cgc ccc gat aac gta gaa tcc caa tgg gcc gct   34709
Glu Tyr Thr His Arg Pro Asp Asn Val Glu Ser Gln Trp Ala Ala

```
gca  tta  gtt  ttt  ttt  gtc  acc  gca  aac  gac  ggt  ccc  gta  agc  gaa       34754
Ala  Leu  Val  Phe  Phe  Val  Thr  Ala  Asn  Asp  Gly  Pro  Val  Ser  Glu
4780                     4785                     4790

gaa  gcg  cta  tct  tcg  gca  gta  acg  ctt  ata  tac  gga  agc  tgt  gat       34799
Glu  Ala  Leu  Ser  Ser  Ala  Val  Thr  Leu  Ile  Tyr  Gly  Ser  Cys  Asp
4795                     4800                     4805

aca  tat  ttt  aca  gat  gaa  caa  tat  tgc  gaa  aaa  ctg  gtt  aca  gct       34844
Thr  Tyr  Phe  Thr  Asp  Glu  Gln  Tyr  Cys  Glu  Lys  Leu  Val  Thr  Ala
4810                     4815                     4820

caa  cat  ccg  ttg  ctt  ctt  tca  cct  cct  aat  tcc  acg  aca  att  gtg       34889
Gln  His  Pro  Leu  Leu  Leu  Ser  Pro  Pro  Asn  Ser  Thr  Thr  Ile  Val
4825                     4830                     4835

ctt  aat  aaa  tcg  tct  ata  gta  cct  ctt  cac  caa  aac  gtt  ggt  gaa       34934
Leu  Asn  Lys  Ser  Ser  Ile  Val  Pro  Leu  His  Gln  Asn  Val  Gly  Glu
4840                     4845                     4850

agt  gta  tcc  ttg  gaa  gca  acc  cta  cat  tca  acg  tta  acc  aac  acg       34979
Ser  Val  Ser  Leu  Glu  Ala  Thr  Leu  His  Ser  Thr  Leu  Thr  Asn  Thr
4855                     4860                     4865

gtt  gca  ctg  gac  cct  aga  tgt  agt  tac  agc  gag  gtt  gat  cct  tgg       35024
Val  Ala  Leu  Asp  Pro  Arg  Cys  Ser  Tyr  Ser  Glu  Val  Asp  Pro  Trp
4870                     4875                     4880

cat  gcg  gtt  cta  gaa  aca  acc  tcg  act  ggg  tct  ggc  gtt  ttg  gat       35069
His  Ala  Val  Leu  Glu  Thr  Thr  Ser  Thr  Gly  Ser  Gly  Val  Leu  Asp
4885                     4890                     4895

tgt  cgt  cgt  aga  cgc  cgt  cct  tca  tgg  act  cct  cct  tca  agc  gag       35114
Cys  Arg  Arg  Arg  Arg  Arg  Pro  Ser  Trp  Thr  Pro  Pro  Ser  Ser  Glu
4900                     4905                     4910

gaa  aat  tta  gct  tgt  atc  gac  gat  ggc  ttg  gta  aat  aat  aca  cat       35159
Glu  Asn  Leu  Ala  Cys  Ile  Asp  Asp  Gly  Leu  Val  Asn  Asn  Thr  His
4915                     4920                     4925

tcc  acg  gat  aat  tta  cat  aaa  ccc  gct  aaa  aag  gtt  ctc  aaa  ttt       35204
Ser  Thr  Asp  Asn  Leu  His  Lys  Pro  Ala  Lys  Lys  Val  Leu  Lys  Phe
4930                     4935                     4940

aaa  cca  act  gta  gac  gtg  ccg  gat  aaa  aca  caa  gtg  gca  cat  gta       35249
Lys  Pro  Thr  Val  Asp  Val  Pro  Asp  Lys  Thr  Gln  Val  Ala  His  Val
4945                     4950                     4955

tta  ccc  cgc  cta  cga  gaa  gtt  gct  aac  acc  cca  gac  gtt  gtg  tta       35294
Leu  Pro  Arg  Leu  Arg  Glu  Val  Ala  Asn  Thr  Pro  Asp  Val  Val  Leu
4960                     4965                     4970

aat  gta  tcc  aat  gta  gat  acg  cct  gaa  tcc  agt  ccc  act  ttt  tca       35339
Asn  Val  Ser  Asn  Val  Asp  Thr  Pro  Glu  Ser  Ser  Pro  Thr  Phe  Ser
4975                     4980                     4985

cgg  aac  atg  aat  gta  gga  agc  agt  ttg  aaa  gat  cgg  aag  cca  ttt       35384
Arg  Asn  Met  Asn  Val  Gly  Ser  Ser  Leu  Lys  Asp  Arg  Lys  Pro  Phe
4990                     4995                     5000

cta  ttt  gaa  cag  agt  ggt  gat  gtc  aac  atg  gtt  gtc  gaa  aaa  cta       35429
```

```
Leu  Phe Glu Gln Ser Gly  Asp Val Asn Met Val  Val Glu Lys Leu
5005                 5010                5015
```

```
cta  caa cat ggg cat gaa  att agc aat gga tac  gta caa aat gcg    35474
Leu  Gln His Gly His Glu  Ile Ser Asn Gly Tyr  Val Gln Asn Ala
5020                 5025                5030
```

```
gtg  ggt acg ttg gat act  gtt att acc ggt cat  aca aat gtt ccc    35519
Val  Gly Thr Leu Asp Thr  Val Ile Thr Gly His  Thr Asn Val Pro
5035                 5040                5045
```

```
att  tgg gta aca agg ccc  ttg gtt atg cca gac  gaa aag gat cca    35564
Ile  Trp Val Thr Arg Pro  Leu Val Met Pro Asp  Glu Lys Asp Pro
5050                 5055                5060
```

```
ttg  gag ctt ttt att aac  ctc acc att ttg cgt  tta acg gga ttt    35609
Leu  Glu Leu Phe Ile Asn  Leu Thr Ile Leu Arg  Leu Thr Gly Phe
5065                 5070                5075
```

```
gtg  gtg gaa aat gga aca  cgt aca cat cat ggt  gct aca agc gtt    35654
Val  Val Glu Asn Gly Thr  Arg Thr His His Gly  Ala Thr Ser Val
5080                 5085                5090
```

```
gta  tca gac ttt ata ggt  ccc ctt ggg gaa att  tta aca gga ttt    35699
Val  Ser Asp Phe Ile Gly  Pro Leu Gly Glu Ile  Leu Thr Gly Phe
5095                 5100                5105
```

```
ccc  tcc gcc gcg gaa ctt  ata cgc gtt aca agt  ttg ata tta aca    35744
Pro  Ser Ala Ala Glu Leu  Ile Arg Val Thr Ser  Leu Ile Leu Thr
5110                 5115                5120
```

```
aac  atg ccg ggg gcg gaa  tat gct att aaa act  gtt ctc cgg aaa    35789
Asn  Met Pro Gly Ala Glu  Tyr Ala Ile Lys Thr  Val Leu Arg Lys
5125                 5130                5135
```

```
aaa  tgt aca att ggc atg  ctc att atc gct aag  ttt ggt cta gtt    35834
Lys  Cys Thr Ile Gly Met  Leu Ile Ile Ala Lys  Phe Gly Leu Val
5140                 5145                5150
```

```
gcc  atg cgg gtt cag gat  aca acc ggc gct tta  cat gcc gaa cta    35879
Ala  Met Arg Val Gln Asp  Thr Thr Gly Ala Leu  His Ala Glu Leu
5155                 5160                5165
```

```
gat  gtg tta gaa gcg gat  cta gga ggt tcg tcg  ccc ata gac ctc    35924
Asp  Val Leu Glu Ala Asp  Leu Gly Gly Ser Ser  Pro Ile Asp Leu
5170                 5175                5180
```

```
tat  tct aga ctg tcg aca  ggt ctt ata agt ata  cta aat tcg cct    35969
Tyr  Ser Arg Leu Ser Thr  Gly Leu Ile Ser Ile  Leu Asn Ser Pro
5185                 5190                5195
```

```
att  att tct cat ccc gga  ctt ttt gcc gag ctt  att cca acc cgt    36014
Ile  Ile Ser His Pro Gly  Leu Phe Ala Glu Leu  Ile Pro Thr Arg
5200                 5205                5210
```

```
aca  ggg tcc ctg tct gaa  cga ata cgt ctt ctt  tgt gaa tta gtc    36059
Thr  Gly Ser Leu Ser Glu  Arg Ile Arg Leu Leu  Cys Glu Leu Val
5215                 5220                5225
```

```
tcg  gcc cgg gag aca cgc  tat atg cgt gaa cac  acc gcg ctt gtt    36104
Ser  Ala Arg Glu Thr Arg  Tyr Met Arg Glu His  Thr Ala Leu Val
5230                 5235                5240
```

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```
tct  agt  gta  aag  gct  tta  gag  aat  gca  tta  cgg  tct  acc  cgc  aat        36149
Ser  Ser  Val  Lys  Ala  Leu  Glu  Asn  Ala  Leu  Arg  Ser  Thr  Arg  Asn
5245                5250                5255

aaa  att  gat  gcc  att  caa  ata  cca  gaa  gtt  ccc  cag  gaa  ccc  ccg        36194
Lys  Ile  Asp  Ala  Ile  Gln  Ile  Pro  Glu  Val  Pro  Gln  Glu  Pro  Pro
5260                5265                5270

gaa  gaa  acc  gac  att  cca  ccc  gaa  gag  tta  att  cgg  cgt  gta  tat        36239
Glu  Glu  Thr  Asp  Ile  Pro  Pro  Glu  Glu  Leu  Ile  Arg  Arg  Val  Tyr
5275                5280                5285

gag  ata  cga  tcc  gaa  gtt  aca  atg  cta  ttg  acc  tcg  gct  gtt  aca        36284
Glu  Ile  Arg  Ser  Glu  Val  Thr  Met  Leu  Leu  Thr  Ser  Ala  Val  Thr
5290                5295                5300

gaa  tac  ttc  acc  cgc  gga  gtg  tta  tat  agc  aca  cgg  gcc  ttg  atc        36329
Glu  Tyr  Phe  Thr  Arg  Gly  Val  Leu  Tyr  Ser  Thr  Arg  Ala  Leu  Ile
5305                5310                5315

gct  gaa  caa  tcc  cct  agg  cgt  ttt  cgg  gtc  gcg  acc  gca  agt  acg        36374
Ala  Glu  Gln  Ser  Pro  Arg  Arg  Phe  Arg  Val  Ala  Thr  Ala  Ser  Thr
5320                5325                5330

gca  ccc  att  caa  cgg  ctt  tta  gat  tct  ctt  ccg  gaa  ttc  gac  gct        36419
Ala  Pro  Ile  Gln  Arg  Leu  Leu  Asp  Ser  Leu  Pro  Glu  Phe  Asp  Ala
5335                5340                5345

aaa  tta  acg  gca  atc  ata  tcg  tcc  ctg  tct  ata  cac  cct  cct  cct        36464
Lys  Leu  Thr  Ala  Ile  Ile  Ser  Ser  Leu  Ser  Ile  His  Pro  Pro  Pro
5350                5355                5360

gag  act  ata  caa  aat  ctc  ccc  gtc  gta  tct  ctg  tta  aaa  gag  ctt        36509
Glu  Thr  Ile  Gln  Asn  Leu  Pro  Val  Val  Ser  Leu  Leu  Lys  Glu  Leu
5365                5370                5375

att  aaa  gaa  ggg  gaa  gat  tta  aac  aca  gac  acg  gct  ctc  gta  tcg        36554
Ile  Lys  Glu  Gly  Glu  Asp  Leu  Asn  Thr  Asp  Thr  Ala  Leu  Val  Ser
5380                5385                5390

tgg  tta  tct  gta  gtc  ggg  gaa  gct  caa  acc  gca  ggt  tac  tta  tcc        36599
Trp  Leu  Ser  Val  Val  Gly  Glu  Ala  Gln  Thr  Ala  Gly  Tyr  Leu  Ser
5395                5400                5405

aga  cga  gag  ttc  gat  gaa  tta  tca  cgt  aca  att  aaa  acc  att  aat        36644
Arg  Arg  Glu  Phe  Asp  Glu  Leu  Ser  Arg  Thr  Ile  Lys  Thr  Ile  Asn
5410                5415                5420

aca  cgc  gca  acg  caa  cgg  gct  tcc  gcg  gaa  gca  gag  ttg  tct  tgc        36689
Thr  Arg  Ala  Thr  Gln  Arg  Ala  Ser  Ala  Glu  Ala  Glu  Leu  Ser  Cys
5425                5430                5435

ttt  aat  acg  cta  agc  gcg  gcc  gta  gac  caa  gcc  gta  aag  gac  tat        36734
Phe  Asn  Thr  Leu  Ser  Ala  Ala  Val  Asp  Gln  Ala  Val  Lys  Asp  Tyr
5440                5445                5450

gaa  aca  tat  aac  aat  ggt  gag  gtc  aag  tat  cct  gaa  ata  aca  cgg        36779
Glu  Thr  Tyr  Asn  Asn  Gly  Glu  Val  Lys  Tyr  Pro  Glu  Ile  Thr  Arg
5455                5460                5465

gat  gat  tta  tta  gca  aca  att  gta  cgt  gct  aca  gac  gat  ttg  gtg        36824
Asp  Asp  Leu  Leu  Ala  Thr  Ile  Val  Arg  Ala  Thr  Asp  Asp  Leu  Val
5470                5475                5480
```

```
cga cag ata aaa att tta   agt gat cca atg atc   caa tcc ggt tta         36869
Arg Gln Ile Lys Ile Leu   Ser Asp Pro Met Ile   Gln Ser Gly Leu
5485                5490                5495

caa cct tcg att aaa aga   cga ttg gaa aca agg   ctt aaa gag gtt         36914
Gln Pro Ser Ile Lys Arg   Arg Leu Glu Thr Arg   Leu Lys Glu Val
5500                5505                5510

cag acg tat gca aac gag   gcc cga acc aca cag   gac aca ata aag         36959
Gln Thr Tyr Ala Asn Glu   Ala Arg Thr Thr Gln   Asp Thr Ile Lys
5515                5520                5525

agt cga aaa cag gcg gca   tat aat aaa ctc ggg   ggg tta ctt cgc         37004
Ser Arg Lys Gln Ala Ala   Tyr Asn Lys Leu Gly   Gly Leu Leu Arg
5530                5535                5540

ccg gta acc ggt ttt gtg   gga ctt agg gct gca   gta gat tta tta         37049
Pro Val Thr Gly Phe Val   Gly Leu Arg Ala Ala   Val Asp Leu Leu
5545                5550                5555

ccg gaa ctt gct tct gag   tta gat gtc caa gga   gcc ctg gta aat         37094
Pro Glu Leu Ala Ser Glu   Leu Asp Val Gln Gly   Ala Leu Val Asn
5560                5565                5570

ctc agg acc aaa gtc tta   gag gcg ccg gta gag   atc cgt tct caa         37139
Leu Arg Thr Lys Val Leu   Glu Ala Pro Val Glu   Ile Arg Ser Gln
5575                5580                5585

ctt acg ggt gat ttc tgg   gcg tta ttt aac caa   tat cga gac att         37184
Leu Thr Gly Asp Phe Trp   Ala Leu Phe Asn Gln   Tyr Arg Asp Ile
5590                5595                5600

tta gaa cat ccc gga aac   gca cgc aca tct gtc   tta gga gga ctg         37229
Leu Glu His Pro Gly Asn   Ala Arg Thr Ser Val   Leu Gly Gly Leu
5605                5610                5615

gga gct tgt ttt aca gct   att atc gaa att gtg   ccg ata cct acg         37274
Gly Ala Cys Phe Thr Ala   Ile Ile Glu Ile Val   Pro Ile Pro Thr
5620                5625                5630

gag tat aga cca tca ttg   ctt gcg ttt ttt ggt   gac gtg gca gat         37319
Glu Tyr Arg Pro Ser Leu   Leu Ala Phe Phe Gly   Asp Val Ala Asp
5635                5640                5645

gtg ctt gca tcc gac atc   gcg acc gta tct act   aac ccg gaa agt         37364
Val Leu Ala Ser Asp Ile   Ala Thr Val Ser Thr   Asn Pro Glu Ser
5650                5655                5660

gag tcc gcc ata aac gct   gtt gtt gca act ctt   agt aaa gcg acg         37409
Glu Ser Ala Ile Asn Ala   Val Val Ala Thr Leu   Ser Lys Ala Thr
5665                5670                5675

tta gtt tca tct aca gtg   cca gcc tta tcc ttt   gtg ttg tcg tta         37454
Leu Val Ser Ser Thr Val   Pro Ala Leu Ser Phe   Val Leu Ser Leu
5680                5685                5690

tat aaa aaa tat cag gct   tta caa caa gaa att   acg aat acc cat         37499
Tyr Lys Lys Tyr Gln Ala   Leu Gln Gln Glu Ile   Thr Asn Thr His
5695                5700                5705

aag ttg act gaa tta caa   aaa caa ctt gga gat   gac ttc tcc acc         37544
Lys Leu Thr Glu Leu Gln   Lys Gln Leu Gly Asp   Asp Phe Ser Thr
```

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5710                          5715                          5720
cta gct gtc tca tct gga  cac ttg aag ttt ata  tca tct tca aat        37589
Leu Ala Val Ser Ser Gly  His Leu Lys Phe Ile  Ser Ser Ser Asn
5725                     5730                     5735

gta gat gat tat gaa ata  aac gat gcg ata tta  tca ata caa aca        37634
Val Asp Asp Tyr Glu Ile  Asn Asp Ala Ile Leu  Ser Ile Gln Thr
5740                     5745                     5750

aat gtg cac gcc cta atg  gat acg gtt aaa ctt  gtt gaa gtt gaa        37679
Asn Val His Ala Leu Met  Asp Thr Val Lys Leu  Val Glu Val Glu
5755                     5760                     5765

ctg caa aag cta ccc ccc  cat tgt att gct ggg  aca tct acc tta        37724
Leu Gln Lys Leu Pro Pro  His Cys Ile Ala Gly  Thr Ser Thr Leu
5770                     5775                     5780

tct cga gta gta aag gat  ctt cat aaa ctc gtc  aca atg gca cat        37769
Ser Arg Val Val Lys Asp  Leu His Lys Leu Val  Thr Met Ala His
5785                     5790                     5795

gag aag aag gaa cag gca  aaa gtg tta att acc  gat tgt gaa cgt        37814
Glu Lys Lys Glu Gln Ala  Lys Val Leu Ile Thr  Asp Cys Glu Arg
5800                     5805                     5810

gca cat aaa caa caa acg  act cgg gtt ttg tat  gag cgt tgg aca        37859
Ala His Lys Gln Gln Thr  Thr Arg Val Leu Tyr  Glu Arg Trp Thr
5815                     5820                     5825

cgt gat att ata gca tgt  ctg gag gca atg gaa  acg cgc cat ata        37904
Arg Asp Ile Ile Ala Cys  Leu Glu Ala Met Glu  Thr Arg His Ile
5830                     5835                     5840

ttt aac ggg aca gaa ctg  gca cgg ttg cga gat  atg gcc gct gcg        37949
Phe Asn Gly Thr Glu Leu  Ala Arg Leu Arg Asp  Met Ala Ala Ala
5845                     5850                     5855

gga ggg ttt gat ata cac  gca gtt tac cca caa  gca cgt cag gtt        37994
Gly Gly Phe Asp Ile His  Ala Val Tyr Pro Gln  Ala Arg Gln Val
5860                     5865                     5870

gta gcg gca tgt gaa act  aca gcc gtt acg gca  tta gat act gtg        38039
Val Ala Ala Cys Glu Thr  Thr Ala Val Thr Ala  Leu Asp Thr Val
5875                     5880                     5885

ttt cgc cac aat cca tat  acc ccc gaa aat aca  aat att cca cca        38084
Phe Arg His Asn Pro Tyr  Thr Pro Glu Asn Thr  Asn Ile Pro Pro
5890                     5895                     5900

cct ttg gct ttg tta aga  ggg tta aca tgg ttt  gat gat ttt tcg        38129
Pro Leu Ala Leu Leu Arg  Gly Leu Thr Trp Phe  Asp Asp Phe Ser
5905                     5910                     5915

att acg gct ccc gta ttc  acc gtt atg ttt cca  ggt gtt agt att        38174
Ile Thr Ala Pro Val Phe  Thr Val Met Phe Pro  Gly Val Ser Ile
5920                     5925                     5930

gag gga ctc ctt ctg ctt  atg cgt att cgc gcg  gtt gtg tta tta        38219
Glu Gly Leu Leu Leu Leu  Met Arg Ile Arg Ala  Val Val Leu Leu
5935                     5940                     5945

tcc gcc gat acg tct att  aat gga ata cct aac  tac cga gat atg        38264
Ser Ala Asp Thr Ser Ile  Asn Gly Ile Pro Asn  Tyr Arg Asp Met
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Ser Ala Asp Thr Ser Ile Asn Gly Ile Pro Asn Tyr Arg Asp Met
5950   5955   5960

ata tta cga acc tcg ggg gat cta tta caa ata ccc gca ttg gct   38309
Ile Leu Arg Thr Ser Gly Asp Leu Leu Gln Ile Pro Ala Leu Ala
5965   5970   5975

ggg tat gtt gat ttt tac aca cgg tct tat gat cag ttt ata acc   38354
Gly Tyr Val Asp Phe Tyr Thr Arg Ser Tyr Asp Gln Phe Ile Thr
5980   5985   5990

gaa agt gta acg tta agt gaa ctt aga gca gac atc aga cag gct   38399
Glu Ser Val Thr Leu Ser Glu Leu Arg Ala Asp Ile Arg Gln Ala
5995   6000   6005

gcc ggg gct aaa ctt aca gaa gca aat aag gct ttg gag gaa gta   38444
Ala Gly Ala Lys Leu Thr Glu Ala Asn Lys Ala Leu Glu Glu Val
6010   6015   6020

act cat gtt cgg gca cac gaa acg gct aaa ctt gca ctt aaa gaa   38489
Thr His Val Arg Ala His Glu Thr Ala Lys Leu Ala Leu Lys Glu
6025   6030   6035

ggt gtc ttc att aca tta cca agc gaa ggt tta ttg att cgg gct   38534
Gly Val Phe Ile Thr Leu Pro Ser Glu Gly Leu Leu Ile Arg Ala
6040   6045   6050

ata gag tat ttt aca act ttc gat cat aaa cga ttt ata gga acg   38579
Ile Glu Tyr Phe Thr Thr Phe Asp His Lys Arg Phe Ile Gly Thr
6055   6060   6065

gca tat gaa aga gtt tta caa aca atg gta gac cgc gat cta aag   38624
Ala Tyr Glu Arg Val Leu Gln Thr Met Val Asp Arg Asp Leu Lys
6070   6075   6080

gag gcc aac gca gag ctt gca cag ttt cgt atg gtg tgt cag gca   38669
Glu Ala Asn Ala Glu Leu Ala Gln Phe Arg Met Val Cys Gln Ala
6085   6090   6095

aca aag aac cgt gca ata caa att tta caa aac att gtt gat acg   38714
Thr Lys Asn Arg Ala Ile Gln Ile Leu Gln Asn Ile Val Asp Thr
6100   6105   6110

gcc aat gcc act gag caa caa gaa gac gtg gat ttc act aac ctg   38759
Ala Asn Ala Thr Glu Gln Gln Glu Asp Val Asp Phe Thr Asn Leu
6115   6120   6125

aag acg tta tta aaa cta acc ccc cct ccc aaa aca att gca ttg   38804
Lys Thr Leu Leu Lys Leu Thr Pro Pro Pro Lys Thr Ile Ala Leu
6130   6135   6140

gcc att gat aga tct act tcc gtt cag gac att gtc acg cag ttt   38849
Ala Ile Asp Arg Ser Thr Ser Val Gln Asp Ile Val Thr Gln Phe
6145   6150   6155

gca ttg ctg tta ggg cgt ctg gaa gaa gaa act ggt acg ttg gac   38894
Ala Leu Leu Leu Gly Arg Leu Glu Glu Glu Thr Gly Thr Leu Asp
6160   6165   6170

att cag gcg gtt gac tgg atg tac caa gct cgc aat att att gac   38939
Ile Gln Ala Val Asp Trp Met Tyr Gln Ala Arg Asn Ile Ile Asp
6175   6180   6185

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tcc cat cca cta agt gtg   cgt ata gac ggt acc   ggc ccc ctg cat        38984
Ser His Pro Leu Ser Val   Arg Ile Asp Gly Thr   Gly Pro Leu His
6190            6195                 6200

act tat aaa gat agg gtg   gat aaa ctt tat gcg   tta cga act aaa        39029
Thr Tyr Lys Asp Arg Val   Asp Lys Leu Tyr Ala   Leu Arg Thr Lys
6205            6210                 6215

tta gat ctc cta cga cga   cga ata gaa acc ggt   gag gtt acg tgg        39074
Leu Asp Leu Leu Arg Arg   Arg Ile Glu Thr Gly   Glu Val Thr Trp
6220            6225                 6230

gac gat gca tgg aca aca   ttt aaa aga gaa acg   ggg gat atg ttg        39119
Asp Asp Ala Trp Thr Thr   Phe Lys Arg Glu Thr   Gly Asp Met Leu
6235            6240                 6245

gca tcg ggg gac acg tac   gct act tcc gta gat   agt ata aag gca        39164
Ala Ser Gly Asp Thr Tyr   Ala Thr Ser Val Asp   Ser Ile Lys Ala
6250            6255                 6260

ctc cag gca tcg gcg tct   gtg gtt gac atg ctt   tgt tcc gaa ccc        39209
Leu Gln Ala Ser Ala Ser   Val Val Asp Met Leu   Cys Ser Glu Pro
6265            6270                 6275

gaa ttt ttt tta ttg cct   gtg gaa acg aaa aac   cgt ctc caa aaa        39254
Glu Phe Phe Leu Leu Pro   Val Glu Thr Lys Asn   Arg Leu Gln Lys
6280            6285                 6290

aag caa cag gaa cgt aaa   acg gcg ttg gat gtt   gtg ttg caa aaa        39299
Lys Gln Gln Glu Arg Lys   Thr Ala Leu Asp Val   Val Leu Gln Lys
6295            6300                 6305

caa aga cag ttt gaa gag   acc gcg tct cgc tta   cga gct tta att        39344
Gln Arg Gln Phe Glu Glu   Thr Ala Ser Arg Leu   Arg Ala Leu Ile
6310            6315                 6320

gaa cgt att cca acg gag   agt gac cat gac gtt   ctt cgt atg tta        39389
Glu Arg Ile Pro Thr Glu   Ser Asp His Asp Val   Leu Arg Met Leu
6325            6330                 6335

tta cgt gat ttc gat caa   ttt aca cat ttg cct   ata tgg ata aaa        39434
Leu Arg Asp Phe Asp Gln   Phe Thr His Leu Pro   Ile Trp Ile Lys
6340            6345                 6350

aca cag tat atg aca ttt   cga aat tta ctc atg   gta cgg tta ggc        39479
Thr Gln Tyr Met Thr Phe   Arg Asn Leu Leu Met   Val Arg Leu Gly
6355            6360                 6365

ttg tat gca agt tat gct   gag att ttt cca ccc   gcg tct cca aac        39524
Leu Tyr Ala Ser Tyr Ala   Glu Ile Phe Pro Pro   Ala Ser Pro Asn
6370            6375                 6380

gga gta ttt gct cct att   ccc gcc atg tcg ggt   gta tgt cta gaa        39569
Gly Val Phe Ala Pro Ile   Pro Ala Met Ser Gly   Val Cys Leu Glu
6385            6390                 6395

gac caa tcc cga tgc att   cgc gcg cgg gtg gcc   gcg ttt atg ggg        39614
Asp Gln Ser Arg Cys Ile   Arg Ala Arg Val Ala   Ala Phe Met Gly
6400            6405                 6410

gag gcg tct gtg gtg caa   acg ttt agg gaa gcc   aga tct tct ata        39659
Glu Ala Ser Val Val Gln   Thr Phe Arg Glu Ala   Arg Ser Ser Ile
6415            6420                 6425
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gac gct ttg ttt gga aaa  aat tta acc ttt tac  ttg gat act gat    39704
Asp Ala Leu Phe Gly Lys  Asn Leu Thr Phe Tyr  Leu Asp Thr Asp
6430                6435                 6440

ggg gtt cca ctt cga tat  aga gtg tgt tat aaa  tca gtt ggg gtt    39749
Gly Val Pro Leu Arg Tyr  Arg Val Cys Tyr Lys  Ser Val Gly Val
6445                6450                 6455

aaa ctt gga acc atg cta  tgc agt cag ggt gga  tta tct tta cga    39794
Lys Leu Gly Thr Met Leu  Cys Ser Gln Gly Gly  Leu Ser Leu Arg
6460                6465                 6470

ccg gca ctt ccc gat gaa  ggt att gtg gaa gaa  act aca cta tcg    39839
Pro Ala Leu Pro Asp Glu  Gly Ile Val Glu Glu  Thr Thr Leu Ser
6475                6480                 6485

gca tta cgc gtg gcc aat  gag gtc aat gag cta  cgc att gaa tac    39884
Ala Leu Arg Val Ala Asn  Glu Val Asn Glu Leu  Arg Ile Glu Tyr
6490                6495                 6500

gaa tcc gct ata aaa tcc  ggg ttt tct gcc ttt  tcc acc ttt gtt    39929
Glu Ser Ala Ile Lys Ser  Gly Phe Ser Ala Phe  Ser Thr Phe Val
6505                6510                 6515

agg cat cgc cac gcc gaa  tgg ggt aaa acc aac  gca cgc aga gcc    39974
Arg His Arg His Ala Glu  Trp Gly Lys Thr Asn  Ala Arg Arg Ala
6520                6525                 6530

att gca gag ata tac gcc  ggc ctt ata aca aca  aca ttg aca cga    40019
Ile Ala Glu Ile Tyr Ala  Gly Leu Ile Thr Thr  Thr Leu Thr Arg
6535                6540                 6545

caa tac ggg gtt cat tgg  gac aag ctt att tat  tct ttt gaa aaa    40064
Gln Tyr Gly Val His Trp  Asp Lys Leu Ile Tyr  Ser Phe Glu Lys
6550                6555                 6560

cac cac cta act tct gta  atg ggc aat gga cta  act aaa cca atc    40109
His His Leu Thr Ser Val  Met Gly Asn Gly Leu  Thr Lys Pro Ile
6565                6570                 6575

cag aga agg ggt gat gta  cgc gta tta gag tta  acc cta tct gat    40154
Gln Arg Arg Gly Asp Val  Arg Val Leu Glu Leu  Thr Leu Ser Asp
6580                6585                 6590

att gta act att ttg gtt  gcc aca acc ccg gta  cat ctt ctc aat    40199
Ile Val Thr Ile Leu Val  Ala Thr Thr Pro Val  His Leu Leu Asn
6595                6600                 6605

ttt gct aga ttg gat tta  att aaa cag cat gag  tat atg gcc cgt    40244
Phe Ala Arg Leu Asp Leu  Ile Lys Gln His Glu  Tyr Met Ala Arg
6610                6615                 6620

acc ctc aga ccc gta atc  gag gcc gca ttt aga  ggt cgt tta ctc    40289
Thr Leu Arg Pro Val Ile  Glu Ala Ala Phe Arg  Gly Arg Leu Leu
6625                6630                 6635

gtt cgc tca ttg gat gga  gac ccg aaa ggc aat  gcc cgg gcc ttt    40334
Val Arg Ser Leu Asp Gly  Asp Pro Lys Gly Asn  Ala Arg Ala Phe
6640                6645                 6650

ttt aat gcc gcc cca tcc  aaa cat aaa ctc ccg  tta gct ctt gga    40379
Phe Asn Ala Ala Pro Ser  Lys His Lys Leu Pro  Leu Ala Leu Gly
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6655   6660   6665

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tca aac caa gat cct acc  ggc ggg aga ata ttt  gca ttt cgg atg      40424
Ser Asn Gln Asp Pro Thr  Gly Gly Arg Ile Phe  Ala Phe Arg Met
6670                     6675                      6680

gca gat tgg aaa ctt gtt  aaa atg cca cag aaa  ata acg gat cct      40469
Ala Asp Trp Lys Leu Val  Lys Met Pro Gln Lys  Ile Thr Asp Pro
6685                     6690                      6695

ttt gcg cca tgg caa ctt  tcc ccc ccc ccc ggg  gta aag gcc aat      40514
Phe Ala Pro Trp Gln Leu  Ser Pro Pro Pro Gly  Val Lys Ala Asn
6700                     6705                      6710

gtc gat gca gtt acc cgt  ata atg gca aca gat  cgt ctt gcg acc      40559
Val Asp Ala Val Thr Arg  Ile Met Ala Thr Asp  Arg Leu Ala Thr
6715                     6720                      6725

att act gta ctt ggg cgc  atg tgt ctc ccg cca  att tcc tta gtg      40604
Ile Thr Val Leu Gly Arg  Met Cys Leu Pro Pro  Ile Ser Leu Val
6730                     6735                      6740

tca atg tgg aat acg ctg  caa ccg gag gaa ttc  gca tac aga aca      40649
Ser Met Trp Asn Thr Leu  Gln Pro Glu Glu Phe  Ala Tyr Arg Thr
6745                     6750                      6755

caa gat gat gtg gac att  ata gtt gat gcg aga  ctg gat ttg tca      40694
Gln Asp Asp Val Asp Ile  Ile Val Asp Ala Arg  Leu Asp Leu Ser
6760                     6765                      6770

tcc acg ctt aat gca aga  ttt gat acc gct ccc  agc aat acc acg      40739
Ser Thr Leu Asn Ala Arg  Phe Asp Thr Ala Pro  Ser Asn Thr Thr
6775                     6780                      6785

tta gag tgg aat aca gac  cgt aaa gta att aca  gat gct tat att      40784
Leu Glu Trp Asn Thr Asp  Arg Lys Val Ile Thr  Asp Ala Tyr Ile
6790                     6795                      6800

caa acc ggg gca acg aca  gtt ttt aca gta acg  ggg gcg gca cca      40829
Gln Thr Gly Ala Thr Thr  Val Phe Thr Val Thr  Gly Ala Ala Pro
6805                     6810                      6815

act cac gtt tct aat gta  aca gcg ttt gac ata  gca act acg gct      40874
Thr His Val Ser Asn Val  Thr Ala Phe Asp Ile  Ala Thr Thr Ala
6820                     6825                      6830

att tta ttt ggg gct cct  ttg gtt att gcc atg  gaa ctt aca tcc      40919
Ile Leu Phe Gly Ala Pro  Leu Val Ile Ala Met  Glu Leu Thr Ser
6835                     6840                      6845

gtt ttt tca caa aat tcc  gga ctt act ttg ggg  tta aaa tta ttc      40964
Val Phe Ser Gln Asn Ser  Gly Leu Thr Leu Gly  Leu Lys Leu Phe
6850                     6855                      6860

gat tcc cgg cat atg gct  aca gat tcg ggt ata  tcc tca gcc gta      41009
Asp Ser Arg His Met Ala  Thr Asp Ser Gly Ile  Ser Ser Ala Val
6865                     6870                      6875

tct ccc gat att gtt tct  tgg ggg tta cgt tta  ctg cat atg gat      41054
Ser Pro Asp Ile Val Ser  Trp Gly Leu Arg Leu  Leu His Met Asp
6880                     6885                      6890

cct cac cca att gaa aat  gca tgt tta att gtc  caa cta gaa aaa      41099
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Pro His Pro Ile Glu Asn  Ala Cys Leu Ile Val  Gln Leu Glu Lys
6895             6900                6905

ctg tcc gcg ctc att gca aac aaa cct ctt aca  aac aat ccc ccg      41144
Leu Ser Ala Leu Ile Ala Asn Lys Pro Leu Thr Asn Asn Pro Pro
6910             6915                6920

tgt tta ctg cta ttg gac gaa cat atg aat ccc  tct tat gtt tta      41189
Cys Leu Leu Leu Leu Asp Glu His Met Asn Pro Ser Tyr Val Leu
6925             6930                6935

tgg gaa cga aaa gac tcg att cca gct ccg gat  tat gtg gtc ttt      41234
Trp Glu Arg Lys Asp Ser Ile Pro Ala Pro Asp Tyr Val Val Phe
6940             6945                6950

tgg ggg cca gaa tct ctt att gat ttg ccg tac  atc gac tcc gat      41279
Trp Gly Pro Glu Ser Leu Ile Asp Leu Pro Tyr Ile Asp Ser Asp
6955             6960                6965

gag gac tct ttc ccc tcg tgt ccc gat gat cca  ttt tac tcg caa      41324
Glu Asp Ser Phe Pro Ser Cys Pro Asp Asp Pro Phe Tyr Ser Gln
6970             6975                6980

att att gcc ggt tat gcg ccc caa ggc ccc cca  aac ctc gac aca      41369
Ile Ile Ala Gly Tyr Ala Pro Gln Gly Pro Pro Asn Leu Asp Thr
6985             6990                6995

act gat ttt tac cca acg gag cca cta ttt aag  tct ccc gtt caa      41414
Thr Asp Phe Tyr Pro Thr Glu Pro Leu Phe Lys Ser Pro Val Gln
7000             7005                7010

gtt gtt aga agt tcc aaa tgt aaa aaa atg ccc  gtc cgg ccc gcg      41459
Val Val Arg Ser Ser Lys Cys Lys Lys Met Pro Val Arg Pro Ala
7015             7020                7025

cag ccc gcg cag ccc gcg cag ccc gcg cag ccc  gcg cag acc gtc      41504
Gln Pro Ala Gln Pro Ala Gln Pro Ala Gln Pro Ala Gln Thr Val
7030             7035                7040

cag ccc gcg cag ccc ata gaa ccg ggc aca caa  ata gtg gta caa      41549
Gln Pro Ala Gln Pro Ile Glu Pro Gly Thr Gln Ile Val Val Gln
7045             7050                7055

aat ttt aag aaa ccc caa agc gta aaa aca acc  ctt agc caa aaa      41594
Asn Phe Lys Lys Pro Gln Ser Val Lys Thr Thr Leu Ser Gln Lys
7060             7065                7070

gat att ccc ttg tat gtg gaa acc gaa tca gaa  acg gct gtg ctt      41639
Asp Ile Pro Leu Tyr Val Glu Thr Glu Ser Glu Thr Ala Val Leu
7075             7080                7085

ata cct aag caa tta acc acc tcc att aaa aca  acc gtt tgt aaa      41684
Ile Pro Lys Gln Leu Thr Thr Ser Ile Lys Thr Thr Val Cys Lys
7090             7095                7100

agt att acc cca cca aat aac caa ttg tcg gat  tgg aaa aat aat      41729
Ser Ile Thr Pro Pro Asn Asn Gln Leu Ser Asp Trp Lys Asn Asn
7105             7110                7115

cca cag caa aac caa acg tta aac caa gcg ttc  agt aaa cca ata      41774
Pro Gln Gln Asn Gln Thr Leu Asn Gln Ala Phe Ser Lys Pro Ile
7120             7125                7130
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ctt   gag   att   acc   tcc   att   ccg   aca   gat   gac   tcg   ata   tct   tac   cgg        41819
Leu   Glu   Ile   Thr   Ser   Ile   Pro   Thr   Asp   Asp   Ser   Ile   Ser   Tyr   Arg
7135                    7140                    7145

act   tgg   att   gaa   aaa   tca   aat   caa   aca   caa   aaa   cgg   cat   caa   aat        41864
Thr   Trp   Ile   Glu   Lys   Ser   Asn   Gln   Thr   Gln   Lys   Arg   His   Gln   Asn
7150                    7155                    7160

gac   cct   cga   atg   tat   aac   tcc   aaa   aca   gta   ttc   cac   cct   gta   aat        41909
Asp   Pro   Arg   Met   Tyr   Asn   Ser   Lys   Thr   Val   Phe   His   Pro   Val   Asn
7165                    7170                    7175

aac   caa   tta   cct   tct   tgg   gtt   gac   acg   gca   gcc   gat   gcc   ccc   caa        41954
Asn   Gln   Leu   Pro   Ser   Trp   Val   Asp   Thr   Ala   Ala   Asp   Ala   Pro   Gln
7180                    7185                    7190

acg   gac   cta   ttg   aca   aac   tat   aaa   aca   aga   cag   ccg   tcg   cca   aac        41999
Thr   Asp   Leu   Leu   Thr   Asn   Tyr   Lys   Thr   Arg   Gln   Pro   Ser   Pro   Asn
7195                    7200                    7205

ttt   ccg   cgg   gac   gta   cac   aca   tgg   ggc   gta   tct   tct   aac   ccg   ttt        42044
Phe   Pro   Arg   Asp   Val   His   Thr   Trp   Gly   Val   Ser   Ser   Asn   Pro   Phe
7210                    7215                    7220

aac   tca   ccg   aac   aga   gac   cta   tat   caa   agt   gat   ttt   agt   gaa   cct        42089
Asn   Ser   Pro   Asn   Arg   Asp   Leu   Tyr   Gln   Ser   Asp   Phe   Ser   Glu   Pro
7225                    7230                    7235

tct   gac   ggc   tat   agc   agt   gag   agt   gaa   aat   tct   atc   gta   cta   agt        42134
Ser   Asp   Gly   Tyr   Ser   Ser   Glu   Ser   Glu   Asn   Ser   Ile   Val   Leu   Ser
7240                    7245                    7250

ctc   gac   gaa   cat   cgg   tca   tgt   cgc   gtt   cct   agg   cac   gta   cgc   gtt        42179
Leu   Asp   Glu   His   Arg   Ser   Cys   Arg   Val   Pro   Arg   His   Val   Arg   Val
7255                    7260                    7265

gtt   aat   gcc   gat   gta   gtc   acc   ggt   cga   cgt   tat   gtc   cga   ggg   acc        42224
Val   Asn   Ala   Asp   Val   Val   Thr   Gly   Arg   Arg   Tyr   Val   Arg   Gly   Thr
7270                    7275                    7280

gcc   ttg   gga   gca   ctg   gca   ctg   tta   agc   cag   gca   tgt   cgg   cgt   atg        42269
Ala   Leu   Gly   Ala   Leu   Ala   Leu   Leu   Ser   Gln   Ala   Cys   Arg   Arg   Met
7285                    7290                    7295

atc   gac   aac   gtt   aga   tat   aca   cgt   aaa   ctt   tta   atg   gac   cac   acg        42314
Ile   Asp   Asn   Val   Arg   Tyr   Thr   Arg   Lys   Leu   Leu   Met   Asp   His   Thr
7300                    7305                    7310

gaa   gat   ata   ttt   caa   ggc   ctg   ggg   tat   gtt   aaa   ttg   tta   tta   gat        42359
Glu   Asp   Ile   Phe   Gln   Gly   Leu   Gly   Tyr   Val   Lys   Leu   Leu   Leu   Asp
7315                    7320                    7325

gga   aca   tat   ata   taa   agtagcgcct   attaaagaaa   aaaaaaaaac   aacgattatt        42414
Gly   Thr   Tyr   Ile
7330
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ttctgtgtat  ttttatttac  accctacgac  ttcttgaagc  gtttccagat  tgtcccgtgt        42474

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aatagcacag acacccccgt attttgaatt tttatgtaag ggtcacaatc tacttgcgcc   43794

caattcgcca ttaaacgcat aatatactct accggaaagg cttcggatac gttgtcttcg   43854

ccgttaaact gaaaaacaca acgggcgggg gggcgttgtg gatcaaatat tggaagatcc   43914

ccatcgcaac attgaagagc gcttggtacc accaaccgaa tacgttgtaa aagattatct   43974

ccgcaacccc tcctgcgttc actccgtaca tacgttctcc gtgacatatt gatctaaggt   44034

tgcaaaccaa ggcacgcgcg tgaagtattt agaccattta tcgtgggata taggaggagt   44094

ttggagtgat ccacccccctg acgacttatt aatgcgttta ttttccccat gtattaagca   44154

tccttcaata tttcatgcaa atctagaaat ttggccatga ctcccgcaaa gcgttcacgg   44214

cgacgggtca cgctggcact atgttcacat ggaacaacat aagcagattt ttctgaatcg   44274

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tgagcgtcag ttgtaggtag aattgcttct atttccgggg gaattaaatt ttcaaaccaa   44394

acggaaagag taaaggtgct atcagcagga aaatactttg actccagtgc atcgatattt   44454

aatagattaa catcggtgtc tgtaattaaa tcgcgggccc tcatcccaga g atg gat   44511
                                                         Met Asp
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cgg gta gaa tca gaa  gaa ccc atg gat gga  ttc gaa tcg ccc gta       44556
Arg Val Glu Ser Glu  Glu Pro Met Asp Gly  Phe Glu Ser Pro Val
                7340                7345                7350

ttc tcc gaa aat aca  tct tct aat tcc gga  tgg tgt tcc gac gca       44601
Phe Ser Glu Asn Thr  Ser Ser Asn Ser Gly  Trp Cys Ser Asp Ala
                7355                7360                7365

ttt tcc gat tcg tac  atc gct tat aat cca  gcc ctt ctg cta aaa       44646
Phe Ser Asp Ser Tyr  Ile Ala Tyr Asn Pro  Ala Leu Leu Leu Lys
                7370                7375                7380

aac gat ttg tta ttt  tca gaa ttg tta ttt  gcc tcc cac tta ata       44691
Asn Asp Leu Leu Phe  Ser Glu Leu Leu Phe  Ala Ser His Leu Ile
                7385                7390                7395

aat gtt ccc cgt gca  ata gaa aac aac gtc  act tat gag gcc tct       44736
Asn Val Pro Arg Ala  Ile Glu Asn Asn Val  Thr Tyr Glu Ala Ser
                7400                7405                7410

tcg gcg gta ggt gtg  gat aat gaa atg acc  tca agt acc act gaa       44781
Ser Ala Val Gly Val  Asp Asn Glu Met Thr  Ser Ser Thr Thr Glu
                7415                7420                7425

ttt ata gaa gaa att  gga gac gtt ttg gcg  tta gac aga gcc tgt       44826
Phe Ile Glu Glu Ile  Gly Asp Val Leu Ala  Leu Asp Arg Ala Cys
                7430                7435                7440

ttg gtc tgc aga acg  ctt gat ttg tat aaa  cgt aaa ttt gga ctg       44871
Leu Val Cys Arg Thr  Leu Asp Leu Tyr Lys  Arg Lys Phe Gly Leu
                7445                7450                7455

aca ccg gaa tgg gtt  gcg gac tac gcc atg  tta tgt atg aaa agt       44916
Thr Pro Glu Trp Val  Ala Asp Tyr Ala Met  Leu Cys Met Lys Ser
                7460                7465                7470

ctg gca tcc ccg ccc  tgt gca gtt gtc act  ttt agc gct gcc ttt       44961
Leu Ala Ser Pro Pro  Cys Ala Val Val Thr  Phe Ser Ala Ala Phe
                7475                7480                7485

gaa ttt gtg tat ctt  atg gat cgt tac tac  ctg tgc cgt tat aac       45006
Glu Phe Val Tyr Leu  Met Asp Arg Tyr Tyr  Leu Cys Arg Tyr Asn
                7490                7495                7500

gtt act ttg gtt ggg  tcc ttt gcc agg cgc  acg ctt tcc ctg tta       45051
Val Thr Leu Val Gly  Ser Phe Ala Arg Arg  Thr Leu Ser Leu Leu
                7505                7510                7515

gat ata caa aga cat  ttt ttt ttg cat gta  tgt ttt cgt acc gat       45096
Asp Ile Gln Arg His  Phe Phe Leu His Val  Cys Phe Arg Thr Asp
                7520                7525                7530

gga ggg tta cca ggt  ata cga ccg ccc ccc  ggt aag gaa atg gcc       45141
Gly Gly Leu Pro Gly  Ile Arg Pro Pro Pro  Gly Lys Glu Met Ala
                7535                7540                7545

aac aaa gta aga tat  tcc aat tac tcc ttt  ttt gta cag gcg gta       45186
Asn Lys Val Arg Tyr  Ser Asn Tyr Ser Phe  Phe Val Gln Ala Val
                7550                7555                7560

gtt agg gct gca tta  cta tcg atc agc acg  tct cgt tta gac gaa       45231
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Val Arg Ala Ala Leu  Leu Ser Ile Ser Thr  Ser Arg Leu Asp Glu
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acc gaa acg cgt aag  tca ttt tac ttt aat  cag gac gga ctg act      45276
Thr Glu Thr Arg Lys  Ser Phe Tyr Phe Asn  Gln Asp Gly Leu Thr
                7580                7585                7590

gga ggc cct caa cct  tta gcg gcc gcc ttg  gct aat tgg aaa gat      45321
Gly Gly Pro Gln Pro  Leu Ala Ala Ala Leu  Ala Asn Trp Lys Asp
                7595                7600                7605

tgc gcg cgg atg gtt  gac tgt tca tca tcg  gaa cat cgc aca agt      45366
Cys Ala Arg Met Val  Asp Cys Ser Ser Ser  Glu His Arg Thr Ser
                7610                7615                7620

ggg atg att acc tgc  gcg gaa cgt gca tta  aaa gag gat ata gag      45411
Gly Met Ile Thr Cys  Ala Glu Arg Ala Leu  Lys Glu Asp Ile Glu
                7625                7630                7635

ttt gaa gat ata tta  ata gac aaa ctt aaa  aaa tcg tct tac gta      45456
Phe Glu Asp Ile Leu  Ile Asp Lys Leu Lys  Lys Ser Ser Tyr Val
                7640                7645                7650

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Glu Ala Ala Trp Gly  Tyr Ala Asp Leu Ala  Leu Leu Leu Leu Ser
                7655                7660                7665

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Gly Val Ala Thr Trp  Asn Val Asp Glu Arg  Thr Asn Cys Ala Ile
                7670                7675                7680

gaa act cgc gtt gga  tgt gtt aaa tca tac  tgg cag gcg aac cgg      45591
Glu Thr Arg Val Gly  Cys Val Lys Ser Tyr  Trp Gln Ala Asn Arg
                7685                7690                7695

att gaa aac tcc agg  gac gtt cca aaa caa  ttt tcc aaa ttt acg      45636
Ile Glu Asn Ser Arg  Asp Val Pro Lys Gln  Phe Ser Lys Phe Thr
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agc gag gat gcc tgt  ccc gaa gta gca ttt  ggg cct att ttg tta      45681
Ser Glu Asp Ala Cys  Pro Glu Val Ala Phe  Gly Pro Ile Leu Leu
                7715                7720                7725

act acc tta aaa aac  gca aag tgc cgt ggt  cgc acg aat acc gaa      45726
Thr Thr Leu Lys Asn  Ala Lys Cys Arg Gly  Arg Thr Asn Thr Glu
                7730                7735                7740

tgc atg tta tgt tgt  tta tta acc ata ggg  cac tat tgg atc gct      45771
Cys Met Leu Cys Cys  Leu Leu Thr Ile Gly  His Tyr Trp Ile Ala
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Leu Arg Gln Phe Lys  Arg Asp Ile Leu Ala  Tyr Ser Ala Asn Asn
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aca agt tta ttt gac  tgt atc gaa cct gta  atc aat gca tgg agc      45861
Thr Ser Leu Phe Asp  Cys Ile Glu Pro Val  Ile Asn Ala Trp Ser
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cta gat aac ccc att  aaa ctt aaa ttt cca  ttt aat gat gag ggt      45906
Leu Asp Asn Pro Ile  Lys Leu Lys Phe Pro  Phe Asn Asp Glu Gly
                7790                7795                7800
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aaa cat tta ttt tgc  gat ctc cta tgc gct  ctc tcg gaa tta cag        45996
Lys His Leu Phe Cys  Asp Leu Leu Cys Ala  Leu Ser Glu Leu Gln
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Thr Asn Pro Lys Ile  Leu Phe Ala His Pro  Thr Thr Ala Asp Lys
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Glu Val Leu Glu Leu  Tyr Lys Ala Gln Leu  Ala Ala Gln Asn Arg
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Phe Glu Gly Arg Val  Cys Ala Gly Leu Trp  Thr Leu Ala Tyr Ala
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Ala Phe Ile Arg Asp  Gly Gly Leu Met Leu  Arg Arg His Ala Ile
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8360                8365                8370

gga  gca  ccc  ctg  ttg  gcg  cga  ctg  ctt  ttt  tat  cta  gaa  cgc  tgt      52269
Gly  Ala  Pro  Leu  Leu  Ala  Arg  Leu  Leu  Phe  Tyr  Leu  Glu  Arg  Cys
8375                8380                8385

gac  gct  ggt  gcg  ttt  aca  ggg  ggt  cac  ggg  gat  gcg  tta  aaa  tat      52314
Asp  Ala  Gly  Ala  Phe  Thr  Gly  Gly  His  Gly  Asp  Ala  Leu  Lys  Tyr
8390                8395                8400
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gtt acg ggg acc ttt gac  tct gaa att cca tgt  agt tta tgt gaa      52359
Val Thr Gly Thr Phe Asp  Ser Glu Ile Pro Cys  Ser Leu Cys Glu
8405                8410                8415

aaa cac acg cgg ccg gta  tgc gct cac aca aca  gta cac cga ctt      52404
Lys His Thr Arg Pro Val  Cys Ala His Thr Thr  Val His Arg Leu
8420                8425                8430

aga caa cgc atg ccg cga  ttt gga caa gcc acc  cgt caa cct att      52449
Arg Gln Arg Met Pro Arg  Phe Gly Gln Ala Thr  Arg Gln Pro Ile
8435                8440                8445

ggg gtg ttt gga aca atg  aac agc caa tat agc  gac tgc gat cct      52494
Gly Val Phe Gly Thr Met  Asn Ser Gln Tyr Ser  Asp Cys Asp Pro
8450                8455                8460

cta gga aac tat gct cca  tat tta atc ctt cga  aaa ccc ggg gat      52539
Leu Gly Asn Tyr Ala Pro  Tyr Leu Ile Leu Arg  Lys Pro Gly Asp
8465                8470                8475

caa acg gaa gca gca aag  gca acc atg cag gac  act tat agg gct      52584
Gln Thr Glu Ala Ala Lys  Ala Thr Met Gln Asp  Thr Tyr Arg Ala
8480                8485                8490

aca cta gaa cgc ttg ttt  atc gat cta gaa caa  gag cga cta ctg      52629
Thr Leu Glu Arg Leu Phe  Ile Asp Leu Glu Gln  Glu Arg Leu Leu
8495                8500                8505

gat cgc ggt gcc cca tgt  tct tcc gag gga cta  tcg tct gtc att      52674
Asp Arg Gly Ala Pro Cys  Ser Ser Glu Gly Leu  Ser Ser Val Ile
8510                8515                8520

gtg gat cat cca acg ttt  cgt cgc ata tta gac  aca ctg cgt gcg      52719
Val Asp His Pro Thr Phe  Arg Arg Ile Leu Asp  Thr Leu Arg Ala
8525                8530                8535

cgt ata gaa cag aca aca  aca caa ttt atg aaa  gtg ttg gtt gag      52764
Arg Ile Glu Gln Thr Thr  Thr Gln Phe Met Lys  Val Leu Val Glu
8540                8545                8550

acc cgc gat tat aag atc  cgt gaa gga tta tcc  gaa gcc acc cat      52809
Thr Arg Asp Tyr Lys Ile  Arg Glu Gly Leu Ser  Glu Ala Thr His
8555                8560                8565

tca atg gcg tta acg ttt  gat cca tac tca gga  gca ttt tgt ccc      52854
Ser Met Ala Leu Thr Phe  Asp Pro Tyr Ser Gly  Ala Phe Cys Pro
8570                8575                8580

att acc aat ttt tta gtt  aaa cga aca cac cta  gcc gtg gta caa      52899
Ile Thr Asn Phe Leu Val  Lys Arg Thr His Leu  Ala Val Val Gln
8585                8590                8595

gac tta gca tta agc caa  tgt cat tgt gta ttt  tac gga cag caa      52944
Asp Leu Ala Leu Ser Gln  Cys His Cys Val Phe  Tyr Gly Gln Gln
8600                8605                8610

gtt gag ggg cgg aac ttt  cgt aac caa ttc caa  cct gtt ttg cgg      52989
Val Glu Gly Arg Asn Phe  Arg Asn Gln Phe Gln  Pro Val Leu Arg
8615                8620                8625

cgg cgt ttt gtt gac ctg  ttt aat ggg ggg ttt  ata tca aca cgc      53034
Arg Arg Phe Val Asp Leu  Phe Asn Gly Gly Phe  Ile Ser Thr Arg
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8630   8635   8640

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tct ata acc gta aca tta  tct gaa ggt cct gta  tcc gcc cca aat     53079
Ser Ile Thr Val Thr Leu  Ser Glu Gly Pro Val  Ser Ala Pro Asn
8645                8650                8655

ccg aca ttg gga caa gac  gcg ccc gcg ggg cgt  acc ttt gat ggg     53124
Pro Thr Leu Gly Gln Asp  Ala Pro Ala Gly Arg  Thr Phe Asp Gly
8660                8665                8670

gat tta gcg cgc gta agc  gtg gaa gtt att cgg  gat ata cga gtt     53169
Asp Leu Ala Arg Val Ser  Val Glu Val Ile Arg  Asp Ile Arg Val
8675                8680                8685

aaa aat agg gtc gtt ttt  tca ggt aac tgt aca  aat ctc tct gag     53214
Lys Asn Arg Val Val Phe  Ser Gly Asn Cys Thr  Asn Leu Ser Glu
8690                8695                8700

gca gcc cgg gca agg ctt  gta ggc ctt gca agt  gcg tac caa cgc     53259
Ala Ala Arg Ala Arg Leu  Val Gly Leu Ala Ser  Ala Tyr Gln Arg
8705                8710                8715

caa gaa aaa aga gtg gat  atg tta cac ggg gcc  cta ggg ttt ttg     53304
Gln Glu Lys Arg Val Asp  Met Leu His Gly Ala  Leu Gly Phe Leu
8720                8725                8730

ctt aaa cag ttt cac ggc  ctg tta ttt cct cgg  ggt atg cca cca     53349
Leu Lys Gln Phe His Gly  Leu Leu Phe Pro Arg  Gly Met Pro Pro
8735                8740                8745

aac agt aaa tcc ccc aac  ccg cag tgg ttt tgg  acc ctg tta caa     53394
Asn Ser Lys Ser Pro Asn  Pro Gln Trp Phe Trp  Thr Leu Leu Gln
8750                8755                8760

cgc aac cag atg ccg gca  gat aaa ctt aca cac  gaa gag att acc     53439
Arg Asn Gln Met Pro Ala  Asp Lys Leu Thr His  Glu Glu Ile Thr
8765                8770                8775

act att gca gct gtt aaa  cgg ttt acc gag gaa  tat gca gca ata     53484
Thr Ile Ala Ala Val Lys  Arg Phe Thr Glu Glu  Tyr Ala Ala Ile
8780                8785                8790

aac ttt att aat cta ccc  cca acc tgc ata gga  gaa tta gcc cag     53529
Asn Phe Ile Asn Leu Pro  Pro Thr Cys Ile Gly  Glu Leu Ala Gln
8795                8800                8805

ttt tat atg gca aat ctt  att ctt aaa tac tgc  gat cat tca cag     53574
Phe Tyr Met Ala Asn Leu  Ile Leu Lys Tyr Cys  Asp His Ser Gln
8810                8815                8820

tac ctt ata aat acc tta  act tct ata att acg  ggt gcc agg cgc     53619
Tyr Leu Ile Asn Thr Leu  Thr Ser Ile Ile Thr  Gly Ala Arg Arg
8825                8830                8835

ccg cgt gac cca tca tcc  gtt ttg cat tgg att  cgt aaa gat gtc     53664
Pro Arg Asp Pro Ser Ser  Val Leu His Trp Ile  Arg Lys Asp Val
8840                8845                8850

acg tcc gcc gcg gac ata  gaa acc caa gca aag  gcg ctt ctt gaa     53709
Thr Ser Ala Ala Asp Ile  Glu Thr Gln Ala Lys  Ala Leu Leu Glu
8855                8860                8865

aaa acg gaa aac tta ccg  gaa tta tgg act acg  gct ttt act tca     53754
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Lys Thr Glu Asn Leu Pro Glu Leu Trp Thr Thr Ala Phe Thr Ser
8870   8875   8880

act cat tta gtc cgc gcg gcc atg aat caa cgt ccc atg gtc gtt   53799
Thr His Leu Val Arg Ala Ala Met Asn Gln Arg Pro Met Val Val
8885   8890   8895

tta gga ata agc att agt aaa tat cac gga gcg gca gga aac aac   53844
Leu Gly Ile Ser Ile Ser Lys Tyr His Gly Ala Ala Gly Asn Asn
8900   8905   8910

cgc gtc ttt cag gca ggg aat tgg agc ggt tta aac ggg ggt aaa   53889
Arg Val Phe Gln Ala Gly Asn Trp Ser Gly Leu Asn Gly Gly Lys
8915   8920   8925

aat gta tgc ccg cta ttt aca ttt gat cgc act cgc cgt ttt ata   53934
Asn Val Cys Pro Leu Phe Thr Phe Asp Arg Thr Arg Arg Phe Ile
8930   8935   8940

ata gca tgt cct aga gga ggt ttt atc tgc ccc gta aca ggt ccc   53979
Ile Ala Cys Pro Arg Gly Gly Phe Ile Cys Pro Val Thr Gly Pro
8945   8950   8955

tcg tcg gga aat cga gaa acc acc cta tcc gac caa gtt cgc ggt   54024
Ser Ser Gly Asn Arg Glu Thr Thr Leu Ser Asp Gln Val Arg Gly
8960   8965   8970

ata att gtc agt ggc ggg gcc atg gtt caa tta gcc ata tac gcc   54069
Ile Ile Val Ser Gly Gly Ala Met Val Gln Leu Ala Ile Tyr Ala
8975   8980   8985

acg gtt gtg cgt gca gtg ggc gct cga gca caa cat atg gca ttt   54114
Thr Val Val Arg Ala Val Gly Ala Arg Ala Gln His Met Ala Phe
8990   8995   9000

gac gac tgg tta agt ctt aca gac gat gag ttt tta gcc aga gac   54159
Asp Asp Trp Leu Ser Leu Thr Asp Asp Glu Phe Leu Ala Arg Asp
9005   9010   9015

ttg gag gag tta cac gac cag att atc caa acc ctg gaa acg ccc   54204
Leu Glu Glu Leu His Asp Gln Ile Ile Gln Thr Leu Glu Thr Pro
9020   9025   9030

tgg acc gta gaa ggc gct cta gaa gca gta aag att cta gat gaa   54249
Trp Thr Val Glu Gly Ala Leu Glu Ala Val Lys Ile Leu Asp Glu
9035   9040   9045

aaa acg aca gcg gga gat ggg gaa acc ccc aca aac cta gca ttt   54294
Lys Thr Thr Ala Gly Asp Gly Glu Thr Pro Thr Asn Leu Ala Phe
9050   9055   9060

aat ttt gat tct tgt gaa cca agc cat gac acc aca tct aac gta   54339
Asn Phe Asp Ser Cys Glu Pro Ser His Asp Thr Thr Ser Asn Val
9065   9070   9075

tta aac att tca ggg tca aac att tca ggg tca act gtc cct ggt   54384
Leu Asn Ile Ser Gly Ser Asn Ile Ser Gly Ser Thr Val Pro Gly
9080   9085   9090

ctt aaa cga ccc ccc gaa gat gac gaa ctc ttt gat ctt agt ggt   54429
Leu Lys Arg Pro Pro Glu Asp Asp Glu Leu Phe Asp Leu Ser Gly
9095   9100   9105

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att  ccc ata aaa cat ggg  aac att aca atg gaa  atg att taa            54471
Ile  Pro Ile Lys His Gly  Asn Ile Thr Met Glu  Met Ile
9110                 9115                 9120

cctccctctt tatccaatta aagcccacac gcgggtgagt gtacgtaata aacaagtcaa     54531

tattacatat tctgttgtgt tttcttttt tgtgtgtagt ccttacccat atgacctgta      54591

atatagtgtg tctccaacca ttcagcttac agtccagtgg acagtaacag cccgataac      54650

atg gaa ttg  gat att aat cga aca  ttg ttg gtt cta ctg  ggt caa        54695
Met Glu Leu  Asp Ile Asn Arg Thr  Leu Leu Val Leu Leu  Gly Gln
        9125                 9130                 9135

gtt tat acg  tac atc ttt cag gtt  gaa ctg cta cgt cga  tgt gat        54740
Val Tyr Thr  Tyr Ile Phe Gln Val  Glu Leu Leu Arg Arg  Cys Asp
        9140                 9145                 9150

cca agg gtg  gcg tgt cgc ttt tta  tat cgg tta gcg gct  aac tgt        54785
Pro Arg Val  Ala Cys Arg Phe Leu  Tyr Arg Leu Ala Ala  Asn Cys
        9155                 9160                 9165

ttg aca gtt  cgt tat tta tta aag  ctg ttt ctc cgg gga  ttt aat        54830
Leu Thr Val  Arg Tyr Leu Leu Lys  Leu Phe Leu Arg Gly  Phe Asn
        9170                 9175                 9180

acc cag cta  aaa ttt gga aac act  ccc acg gtt tgt gca  ctg cat        54875
Thr Gln Leu  Lys Phe Gly Asn Thr  Pro Thr Val Cys Ala  Leu His
        9185                 9190                 9195

tgg gca tta  tgt tat gta aag gga  gaa ggt gag cgt ttg  ttt gag        54920
Trp Ala Leu  Cys Tyr Val Lys Gly  Glu Gly Glu Arg Leu  Phe Glu
        9200                 9205                 9210

ttg cta caa  cat ttt aaa acg cgt  ttt gtt tat ggt gag  act aaa        54965
Leu Leu Gln  His Phe Lys Thr Arg  Phe Val Tyr Gly Glu  Thr Lys
        9215                 9220                 9225

gac tca aac  tgt atc aaa gat tac  ttt gtc tca gcg ttt  aac tta        55010
Asp Ser Asn  Cys Ile Lys Asp Tyr  Phe Val Ser Ala Phe  Asn Leu
        9230                 9235                 9240

aaa acc tgc  caa tat cac cat gag  ctg tcg tta aca aca  tac gga        55055
Lys Thr Cys  Gln Tyr His His Glu  Leu Ser Leu Thr Thr  Tyr Gly
        9245                 9250                 9255

ggt tac gta  tcg agt gaa att cag  ttt tta cac gac att  gag aat        55100
Gly Tyr Val  Ser Ser Glu Ile Gln  Phe Leu His Asp Ile  Glu Asn
        9260                 9265                 9270

ttt tta aaa  cag ctt aat tac tgc  tat att atc acg tct  tct cgt        55145
Phe Leu Lys  Gln Leu Asn Tyr Cys  Tyr Ile Ile Thr Ser  Ser Arg
        9275                 9280                 9285

gag gcg cta  aac aca ttg gaa acc  gtg acg cgg ttt atg  aca gat        55190
Glu Ala Leu  Asn Thr Leu Glu Thr  Val Thr Arg Phe Met  Thr Asp
        9290                 9295                 9300

act ata gga  agc ggt cta ata cca  ccc gtg gag ttg ttt  gat ccg        55235
Thr Ile Gly  Ser Gly Leu Ile Pro  Pro Val Glu Leu Phe  Asp Pro
        9305                 9310                 9315

gcg cat cca  tgt gct ata tgt ttt  gaa gaa tta tgt ata  aca gct        55280
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Ala His Pro  Cys Ala Ile Cys Phe  Glu Glu Leu Cys Ile  Thr Ala
    9320                   9325              9330

aac caa ggt  gag acc tta cat cgt  aga tta tta gga tgt  atc tgc        55325
Asn Gln Gly  Glu Thr Leu His Arg  Arg Leu Leu Gly Cys  Ile Cys
    9335                   9340              9345

gat cac gtt  act aag caa gtt cgg  gtt aac gtg gat gtt  gac gat        55370
Asp His Val  Thr Lys Gln Val Arg  Val Asn Val Asp Val  Asp Asp
    9350                   9355              9360

att att cgg  tgt tta cca tat atc  cct gat gta ccg gat  atc aaa        55415
Ile Ile Arg  Cys Leu Pro Tyr Ile  Pro Asp Val Pro Asp  Ile Lys
    9365                   9370              9375

cgt caa tcc  gcc gtt gaa gcg tta  cga aca ctt caa acc  aag acg        55460
Arg Gln Ser  Ala Val Glu Ala Leu  Arg Thr Leu Gln Thr  Lys Thr
    9380                   9385              9390

gta gtc aat  ccc atg gga gca aag  aac gat acg ttt gac  caa aca        55505
Val Val Asn  Pro Met Gly Ala Lys  Asn Asp Thr Phe Asp  Gln Thr
    9395                   9400              9405

tac gaa att  gcg agc acc atg ctt  gat tct tat aat gtt  ttt aaa        55550
Tyr Glu Ile  Ala Ser Thr Met Leu  Asp Ser Tyr Asn Val  Phe Lys
    9410                   9415              9420

cct gcc cct  cgg tgt atg tac gcc  atc agc gag ctt aaa  ttc tgg        55595
Pro Ala Pro  Arg Cys Met Tyr Ala  Ile Ser Glu Leu Lys  Phe Trp
    9425                   9430              9435

tta acg tct  aat tcc act gaa gga  ccc caa cgt act tta  gac gtg        55640
Leu Thr Ser  Asn Ser Thr Glu Gly  Pro Gln Arg Thr Leu  Asp Val
    9440                   9445              9450

ttt gtt gat  aat ttg gat gta tta  aac gaa cat gaa aaa  cac gca        55685
Phe Val Asp  Asn Leu Asp Val Leu  Asn Glu His Glu Lys  His Ala
    9455                   9460              9465

gaa ctt aca  gcc gta acg gtt gag  ttg gcg tta ttt gga  aaa act        55730
Glu Leu Thr  Ala Val Thr Val Glu  Leu Ala Leu Phe Gly  Lys Thr
    9470                   9475              9480

ccc ata cac  ttt gat agg gcg ttt  tct gaa gaa ctc gga  tct ctg        55775
Pro Ile His  Phe Asp Arg Ala Phe  Ser Glu Glu Leu Gly  Ser Leu
    9485                   9490              9495

gat gca att  gat agt att ttg gtt  ggc aat cgc tca tcc  tca cca        55820
Asp Ala Ile  Asp Ser Ile Leu Val  Gly Asn Arg Ser Ser  Ser Pro
    9500                   9505              9510

gac agt cag  ata gaa gca tta att  aaa gcc tgt tat gcc  cat cat        55865
Asp Ser Gln  Ile Glu Ala Leu Ile  Lys Ala Cys Tyr Ala  His His
    9515                   9520              9525

cta tcg tcg  cct ctc atg cgt cac  att tct aac ccg agt  cat gat        55910
Leu Ser Ser  Pro Leu Met Arg His  Ile Ser Asn Pro Ser  His Asp
    9530                   9535              9540

aac gaa gcc  gcc tta cgc caa ctt  tta gaa aga gtt ggg  tgt gag        55955
Asn Glu Ala  Ala Leu Arg Gln Leu  Leu Glu Arg Val Gly  Cys Glu
    9545                   9550              9555
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gat gat tta  acc aaa gag gcg agt  gac agc gct aca gca  tcc gaa        56000
Asp Asp Leu  Thr Lys Glu Ala Ser  Asp Ser Ala Thr Ala  Ser Glu
        9560                9565                9570

tgt gat ctg  aac gat gat agt agc  ata act ttt gct gtt  cat gga        56045
Cys Asp Leu  Asn Asp Asp Ser Ser  Ile Thr Phe Ala Val  His Gly
        9575                9580                9585

tgg gaa aac  ctg tta tcc aaa gca  aaa att gac gct gcg  gaa aga        56090
Trp Glu Asn  Leu Leu Ser Lys Ala  Lys Ile Asp Ala Ala  Glu Arg
        9590                9595                9600

aaa cga gta  tat ctt gaa cat ctg  tct aag cgc tct cta  acc agc        56135
Lys Arg Val  Tyr Leu Glu His Leu  Ser Lys Arg Ser Leu  Thr Ser
        9605                9610                9615

ctc ggt aga  tgt atc cgc gaa cag  cgc caa gag cta gaa  aaa aca        56180
Leu Gly Arg  Cys Ile Arg Glu Gln  Arg Gln Glu Leu Glu  Lys Thr
        9620                9625                9630

ctc agg gta  aac gtt tat gga gag  gcc tta ttg cag aca  ttt gtt        56225
Leu Arg Val  Asn Val Tyr Gly Glu  Ala Leu Leu Gln Thr  Phe Val
        9635                9640                9645

tcg atg caa  aat ggg ttt ggg gca  cga aac gtg ttt tta  gct aag        56270
Ser Met Gln  Asn Gly Phe Gly Ala  Arg Asn Val Phe Leu  Ala Lys
        9650                9655                9660

gtt tcc cag  gca ggg tgt att atc  gac aat cgc att cag  gaa gcg        56315
Val Ser Gln  Ala Gly Cys Ile Ile  Asp Asn Arg Ile Gln  Glu Ala
        9665                9670                9675

gcc ttt gat  gca cat aga ttt ata  agg aat acc tta gtt  cga cat        56360
Ala Phe Asp  Ala His Arg Phe Ile  Arg Asn Thr Leu Val  Arg His
        9680                9685                9690

aca gta gat  gcg gct atg tta cct  gca ctt aca cat aaa  ttt ttt        56405
Thr Val Asp  Ala Ala Met Leu Pro  Ala Leu Thr His Lys  Phe Phe
        9695                9700                9705

gag ttg gtc  aac ggc cca ttg ttt  aat cac gat gaa cac  cgt ttt        56450
Glu Leu Val  Asn Gly Pro Leu Phe  Asn His Asp Glu His  Arg Phe
        9710                9715                9720

gca caa ccc  cct aac acc gcc tta  ttt ttt acc gtg gaa  aac gtt        56495
Ala Gln Pro  Pro Asn Thr Ala Leu  Phe Phe Thr Val Glu  Asn Val
        9725                9730                9735

ggc cta ttt  ccg cac tta aaa gag  gaa ttg gca aag ttt  atg ggc        56540
Gly Leu Phe  Pro His Leu Lys Glu  Glu Leu Ala Lys Phe  Met Gly
        9740                9745                9750

ggt gtc gtt  ggt tcc aac tgg ctt  ctc agt cca ttt agg  ggc ttt        56585
Gly Val Val  Gly Ser Asn Trp Leu  Leu Ser Pro Phe Arg  Gly Phe
        9755                9760                9765

tat tgc ttt  tct ggg gta gaa ggc  gtt act ttt gca cag  aga ctt        56630
Tyr Cys Phe  Ser Gly Val Glu Gly  Val Thr Phe Ala Gln  Arg Leu
        9770                9775                9780

gcc tgg aaa  tat att agg gag ctt  gtg ttt gca acc aca  cta ttc        56675
Ala Trp Lys  Tyr Ile Arg Glu Leu  Val Phe Ala Thr Thr  Leu Phe
        9785                9790                9795
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acc tct gtt  ttc cat tgt ggg gag  gtg cgg tta tgt cgc  gtt gac      56720
Thr Ser Val  Phe His Cys Gly Glu  Val Arg Leu Cys Arg  Val Asp
        9800             9805             9810

cgt cta ggt  aag gat cca cgc ggg  tgc acg tct caa cct  aaa ggt      56765
Arg Leu Gly  Lys Asp Pro Arg Gly  Cys Thr Ser Gln Pro  Lys Gly
        9815             9820             9825

ata ggc agt  tcc cac gga ccc tta  gac ggc att tat tta  acg tac      56810
Ile Gly Ser  Ser His Gly Pro Leu  Asp Gly Ile Tyr Leu  Thr Tyr
        9830             9835             9840

gaa gaa aca  tgt ccc ctt gtg gct  att att caa agt gga  gaa aca      56855
Glu Glu Thr  Cys Pro Leu Val Ala  Ile Ile Gln Ser Gly  Glu Thr
        9845             9850             9855

ggg atc gac  cag aat acc gtc gta  atc tac gat tca gac  gtt ttt      56900
Gly Ile Asp  Gln Asn Thr Val Val  Ile Tyr Asp Ser Asp  Val Phe
        9860             9865             9870

tct ctt cta  tac acc cta atg cag  cgg ctg gct ccg gat  tca acg      56945
Ser Leu Leu  Tyr Thr Leu Met Gln  Arg Leu Ala Pro Asp  Ser Thr
        9875             9880             9885

gac ccg gcg  ttt tca taa cctccgttac gggggtgtgg ttatgctttt          56993
Asp Pro Ala  Phe Ser
        9890

tatgcatatt ttct atg ttt gtt  acg gcg gtt gtg tcg  gtc tct cca agc  57043
               Met Phe Val  Thr Ala Val Val Ser  Val Ser Pro Ser
                   9895             9900

tcg  ttt tat gag agt tta  caa gta gag ccc aca  caa tca gaa gat     57088
Ser  Phe Tyr Glu Ser Leu  Gln Val Glu Pro Thr  Gln Ser Glu Asp
9905             9910             9915

ata  acc cgg tct gct cat  ctg ggc gat ggt gat  gaa atc aga gaa     57133
Ile  Thr Arg Ser Ala His  Leu Gly Asp Gly Asp  Glu Ile Arg Glu
9920             9925             9930

gct  ata cac aag tcc cag  gac gcc gaa aca aaa  ccc acg ttt tac     57178
Ala  Ile His Lys Ser Gln  Asp Ala Glu Thr Lys  Pro Thr Phe Tyr
9935             9940             9945

gtc  tgc cca ccg cca aca  ggc tcc aca atc gta  cga tta gaa cca     57223
Val  Cys Pro Pro Pro Thr  Gly Ser Thr Ile Val  Arg Leu Glu Pro
9950             9955             9960

act  cgg aca tgt ccg gat  tat cac ctt ggt aaa  aac ttt aca gag     57268
Thr  Arg Thr Cys Pro Asp  Tyr His Leu Gly Lys  Asn Phe Thr Glu
9965             9970             9975

ggt  att gct gtt gtt tat  aaa gaa aac att gca  gcg tac aag ttt     57313
Gly  Ile Ala Val Val Tyr  Lys Glu Asn Ile Ala  Ala Tyr Lys Phe
9980             9985             9990

aag  gcg acg gta tat tac  aaa gat gtt atc gtt  agc acg gcg tgg     57358
Lys  Ala Thr Val Tyr Tyr  Lys Asp Val Ile Val  Ser Thr Ala Trp
9995             10000            10005

gcc  gga agt tct tat acg  caa att act aat aga  tat gcg gat agg     57403
Ala  Gly Ser Ser Tyr Thr  Gln Ile Thr Asn Arg  Tyr Ala Asp Arg
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10010                      10015                              10020

gta  cca att ccc gtt tca  gag atc acg gac acc  att gat aag ttt  57448
Val  Pro Ile Pro Val Ser  Glu Ile Thr Asp Thr  Ile Asp Lys Phe
10025                      10030                    10035

ggc  aag tgt tct tct aaa  gca acg tac gta cga  aat aac cac aaa  57493
Gly  Lys Cys Ser Ser Lys  Ala Thr Tyr Val Arg  Asn Asn His Lys
10040                      10045                    10050

gtt  gaa gcc ttt aat gag  gat aaa aat cca cag  gat atg cct cta  57538
Val  Glu Ala Phe Asn Glu  Asp Lys Asn Pro Gln  Asp Met Pro Leu
10055                      10060                    10065

atc  gca tca aaa tat aat  tct gtg gga tcc aaa  gca tgg cat act  57583
Ile  Ala Ser Lys Tyr Asn  Ser Val Gly Ser Lys  Ala Trp His Thr
10070                      10075                    10080

acc  aat gac acg tac atg  gtt gcc gga acc ccc  gga aca tat agg  57628
Thr  Asn Asp Thr Tyr Met  Val Ala Gly Thr Pro  Gly Thr Tyr Arg
10085                      10090                    10095

acg  ggc acg tcg gtg aat  tgc atc att gag gaa  gtt gaa gcc aga  57673
Thr  Gly Thr Ser Val Asn  Cys Ile Ile Glu Glu  Val Glu Ala Arg
10100                      10105                    10110

tca  ata ttc cct tat gat  agt ttt gga ctt tcc  acg gga gat ata  57718
Ser  Ile Phe Pro Tyr Asp  Ser Phe Gly Leu Ser  Thr Gly Asp Ile
10115                      10120                    10125

ata  tac atg tcc ccg ttt  ttt ggc cta cgg gat  ggt gca tac aga  57763
Ile  Tyr Met Ser Pro Phe  Phe Gly Leu Arg Asp  Gly Ala Tyr Arg
10130                      10135                    10140

gaa  cat tcc aat tat gca  atg gat cgt ttt cac  cag ttt gag ggt  57808
Glu  His Ser Asn Tyr Ala  Met Asp Arg Phe His  Gln Phe Glu Gly
10145                      10150                    10155

tat  aga caa agg gat ctt  gac act aga gca tta  ctg gaa cct gca  57853
Tyr  Arg Gln Arg Asp Leu  Asp Thr Arg Ala Leu  Leu Glu Pro Ala
10160                      10165                    10170

gcg  cgg aac ttt tta gtc  acg cct cat tta acg  gtt ggt tgg aac  57898
Ala  Arg Asn Phe Leu Val  Thr Pro His Leu Thr  Val Gly Trp Asn
10175                      10180                    10185

tgg  aag cca aaa cga acg  gaa gtt tgt tcg ctt  gtc aag tgg cgt  57943
Trp  Lys Pro Lys Arg Thr  Glu Val Cys Ser Leu  Val Lys Trp Arg
10190                      10195                    10200

gag  gtt gaa gac gta gtt  cgc gat gag tat gca  cac aat ttt cgc  57988
Glu  Val Glu Asp Val Val  Arg Asp Glu Tyr Ala  His Asn Phe Arg
10205                      10210                    10215

ttt  aca atg aaa aca ctt  tct acc acg ttt ata  agt gaa aca aac  58033
Phe  Thr Met Lys Thr Leu  Ser Thr Thr Phe Ile  Ser Glu Thr Asn
10220                      10225                    10230

gag  ttt aat ctt aac caa  atc cat ctc agt caa  tgt gta aag gag  58078
Glu  Phe Asn Leu Asn Gln  Ile His Leu Ser Gln  Cys Val Lys Glu
10235                      10240                    10245

gaa  gcc cgg gct att att  aac cgg atc tat aca  acc aga tac aac  58123
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Glu   Ala Arg Ala Ile Ile   Asn Arg Ile Tyr Thr   Thr Arg Tyr Asn
10250                 10255                 10260

tca   tct cat gtt aga acc   ggg gat atc cag acc   tac ctt gcc aga   58168
Ser   Ser His Val Arg Thr   Gly Asp Ile Gln Thr   Tyr Leu Ala Arg
10265                 10270                 10275

ggg   ggg ttt gtt gtg gtg   ttt caa ccc ctg ctg   agc aat tcc ctc   58213
Gly   Gly Phe Val Val Val   Phe Gln Pro Leu Leu   Ser Asn Ser Leu
10280                 10285                 10290

gcc   cgt ctc tat ctc caa   gaa ttg gtc cgt gaa   aac act aat cat   58258
Ala   Arg Leu Tyr Leu Gln   Glu Leu Val Arg Glu   Asn Thr Asn His
10295                 10300                 10305

tca   cca caa aaa cac ccg   act cga aat acc aga   tcc cga cga agc   58303
Ser   Pro Gln Lys His Pro   Thr Arg Asn Thr Arg   Ser Arg Arg Ser
10310                 10315                 10320

gtg   cca gtt gag ttg cgt   gcc aat aga aca ata   aca acc acc tca   58348
Val   Pro Val Glu Leu Arg   Ala Asn Arg Thr Ile   Thr Thr Thr Ser
10325                 10330                 10335

tcg   gtg gaa ttt gct atg   ctc cag ttt aca tat   gac cac att caa   58393
Ser   Val Glu Phe Ala Met   Leu Gln Phe Thr Tyr   Asp His Ile Gln
10340                 10345                 10350

gag   cat gtt aat gaa atg   ttg gca cgt atc tcc   tcg tcg tgg tgc   58438
Glu   His Val Asn Glu Met   Leu Ala Arg Ile Ser   Ser Ser Trp Cys
10355                 10360                 10365

cag   cta caa aat cgc gaa   cgc gcc ctt tgg agc   gga cta ttt cca   58483
Gln   Leu Gln Asn Arg Glu   Arg Ala Leu Trp Ser   Gly Leu Phe Pro
10370                 10375                 10380

att   aac cca agt gct tta   gcg agc acc att ttg   gat caa cgt gtt   58528
Ile   Asn Pro Ser Ala Leu   Ala Ser Thr Ile Leu   Asp Gln Arg Val
10385                 10390                 10395

aaa   gct cgt att ctc ggc   gac gtt atc tcc gtt   tct aat tgt cca   58573
Lys   Ala Arg Ile Leu Gly   Asp Val Ile Ser Val   Ser Asn Cys Pro
10400                 10405                 10410

gaa   ctg gga tca gat aca   cgc att ata ctt caa   aac tct atg agg   58618
Glu   Leu Gly Ser Asp Thr   Arg Ile Ile Leu Gln   Asn Ser Met Arg
10415                 10420                 10425

gta   tct ggt agt act acg   cgt tgt tat agc cgt   cct tta att tca   58663
Val   Ser Gly Ser Thr Thr   Arg Cys Tyr Ser Arg   Pro Leu Ile Ser
10430                 10435                 10440

ata   gtt agt tta aat ggg   tcc ggg acg gtg gag   ggc cag ctt gga   58708
Ile   Val Ser Leu Asn Gly   Ser Gly Thr Val Glu   Gly Gln Leu Gly
10445                 10450                 10455

aca   gat aac gag tta att   atg tcc aga gat ctg   tta gaa cca tgc   58753
Thr   Asp Asn Glu Leu Ile   Met Ser Arg Asp Leu   Leu Glu Pro Cys
10460                 10465                 10470

gtg   gct aat cac aag cga   tat ttt cta ttt ggg   cat cac tac gta   58798
Val   Ala Asn His Lys Arg   Tyr Phe Leu Phe Gly   His His Tyr Val
10475                 10480                 10485
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tat    tat gag gat tat cgt    tac gtc cgt gaa atc    gca gtc cat gat    58843
Tyr    Tyr Glu Asp Tyr Arg    Tyr Val Arg Glu Ile    Ala Val His Asp
10490                10495                  10500

gtg    gga atg att agc act    tac gta gat tta aac    tta aca ctt ctt    58888
Val    Gly Met Ile Ser Thr    Tyr Val Asp Leu Asn    Leu Thr Leu Leu
10505                10510                  10515

aaa    gat aga gag ttt atg    ccg ctg caa gta tat    aca aga gac gag    58933
Lys    Asp Arg Glu Phe Met    Pro Leu Gln Val Tyr    Thr Arg Asp Glu
10520                10525                  10530

ctg    cgg gat aca gga tta    cta gac tac agt gaa    att caa cgc cga    58978
Leu    Arg Asp Thr Gly Leu    Leu Asp Tyr Ser Glu    Ile Gln Arg Arg
10535                10540                  10545

aat    caa atg cat tcg ctg    cgt ttt tat gac ata    gac aag gtt gtg    59023
Asn    Gln Met His Ser Leu    Arg Phe Tyr Asp Ile    Asp Lys Val Val
10550                10555                  10560

caa    tat gat agc gga acg    gcc att atg cag ggc    atg gct cag ttt    59068
Gln    Tyr Asp Ser Gly Thr    Ala Ile Met Gln Gly    Met Ala Gln Phe
10565                10570                  10575

ttc    cag gga ctt ggg acc    gcg ggc cag gcc gtt    gga cat gtg gtt    59113
Phe    Gln Gly Leu Gly Thr    Ala Gly Gln Ala Val    Gly His Val Val
10580                10585                  10590

ctt    ggg gcc acg gga gcg    ctg ctt tcc acc gta    cac gga ttt acc    59158
Leu    Gly Ala Thr Gly Ala    Leu Leu Ser Thr Val    His Gly Phe Thr
10595                10600                  10605

acg    ttt tta tct aac cca    ttt ggg gca ttg gcc    gtg gga tta ttg    59203
Thr    Phe Leu Ser Asn Pro    Phe Gly Ala Leu Ala    Val Gly Leu Leu
10610                10615                  10620

gtt    ttg gcg gga ctg gta    gcg gcc ttt ttt gcg    tac cgg tac gtg    59248
Val    Leu Ala Gly Leu Val    Ala Ala Phe Phe Ala    Tyr Arg Tyr Val
10625                10630                  10635

ctt    aaa ctt aaa aca agc    ccg atg aag gca tta    tat cca ctc aca    59293
Leu    Lys Leu Lys Thr Ser    Pro Met Lys Ala Leu    Tyr Pro Leu Thr
10640                10645                  10650

acc    aag ggg tta aaa cag    tta ccg gaa gga atg    gat ccc ttt gcc    59338
Thr    Lys Gly Leu Lys Gln    Leu Pro Glu Gly Met    Asp Pro Phe Ala
10655                10660                  10665

gag    aaa ccc aac gct act    gat acc cca ata gaa    gaa att ggc gac    59383
Glu    Lys Pro Asn Ala Thr    Asp Thr Pro Ile Glu    Glu Ile Gly Asp
10670                10675                  10680

tca    caa aac act gaa ccg    tcg gta aat agc ggg    ttt gat ccc gat    59428
Ser    Gln Asn Thr Glu Pro    Ser Val Asn Ser Gly    Phe Asp Pro Asp
10685                10690                  10695

aaa    ttt cga gaa gcc cag    gaa atg att aaa tat    atg acg tta gta    59473
Lys    Phe Arg Glu Ala Gln    Glu Met Ile Lys Tyr    Met Thr Leu Val
10700                10705                  10710

tct    gcg gct gag cgc caa    gaa tct aaa gcc cgc    aaa aaa aat aag    59518
Ser    Ala Ala Glu Arg Gln    Glu Ser Lys Ala Arg    Lys Lys Asn Lys
10715                10720                  10725
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act   agc gcc ctt tta act   tca cgt ctt acc ggc   ctt gct tta cga   59563
Thr   Ser Ala Leu Leu Thr   Ser Arg Leu Thr Gly   Leu Ala Leu Arg
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aat   cgc cga gga tac tcc   cgt gtt cgc acc gag   aat gta acg ggg   59608
Asn   Arg Arg Gly Tyr Ser   Arg Val Arg Thr Glu   Asn Val Thr Gly
10745                 10750                 10755

gtg   taa atagccaggg ggtttgtttt aatttattaa taaaaatgtg tattacgtta    59664
Val
10760

ctcatgtgtc tccattacgc atcacagggg gtatttatac ccgataatat acaaaacgcg   59724

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                                             Met Glu Ser Ser


aac   att aac gcg cta caa   caa ccg tcg tct atc   gca cat cat ccg   59822
Asn   Ile Asn Ala Leu Gln   Gln Pro Ser Ser Ile   Ala His His Pro
10765                 10770                 10775

tcc   aaa cag tgc gct tca   agt ctc aat gaa aca   gta aaa gat tct   59867
Ser   Lys Gln Cys Ala Ser   Ser Leu Asn Glu Thr   Val Lys Asp Ser
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ccc   ccc gcg att tat gaa   gat agg tta gaa cac   acg ccg gta caa   59912
Pro   Pro Ala Ile Tyr Glu   Asp Arg Leu Glu His   Thr Pro Val Gln
10795                 10800                 10805

tta   ccc cgc gac ggt aca   ccc cga gac gta tgt   tct gtg gga cag   59957
Leu   Pro Arg Asp Gly Thr   Pro Arg Asp Val Cys   Ser Val Gly Gln
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cta   acc tgt cga gca tgt   gca acg aaa cct ttt   cgc ctt aac cgc   60002
Leu   Thr Cys Arg Ala Cys   Ala Thr Lys Pro Phe   Arg Leu Asn Arg
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gac   agc caa tac gac tac   tta aac aca tgt cca   ggg ggc cgt cat   60047
Asp   Ser Gln Tyr Asp Tyr   Leu Asn Thr Cys Pro   Gly Gly Arg His
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att   tca ctg gca ctg gag   att ata acg ggt cga   tgg gtt tgc atc   60092
Ile   Ser Leu Ala Leu Glu   Ile Ile Thr Gly Arg   Trp Val Cys Ile
10855                 10860                 10865

ccg   cgt gtg ttt ccg gat   acc cca gag gaa aaa   tgg atg gcg cca   60137
Pro   Arg Val Phe Pro Asp   Thr Pro Glu Glu Lys   Trp Met Ala Pro
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Tyr   Ile Ile Pro Asp Arg   Glu Gln Pro Ser Ser   Gly Asp Glu Asp
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Ser   Asp Thr Asp
10900

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Leu Arg Ile Tyr Leu   Asp Gly Ala Tyr Gly   Ile Gly Lys Thr Thr
            10920   10925   10930

gcc gcc gaa gaa ttt   tta cac cac ttt gca   ata aca cca aac cgg 64932
Ala Ala Glu Glu Phe   Leu His His Phe Ala   Ile Thr Pro Asn Arg
            10935   10940   10945

atc tta ctc att ggg   gag ccc ctg tcg tat   tgg cgt aac ctt gca 64977
Ile Leu Leu Ile Gly   Glu Pro Leu Ser Tyr   Trp Arg Asn Leu Ala
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            10965   10970   10975

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Leu Asn Gly Asp Val   Ser Pro Glu Asp Ala   Gln Arg Leu Thr Ala
            10980   10985   10990

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            10995   11000   11005

aaa atc tcg gca ttg   atg gac aca agt aca   tcg gat ctc gta caa 65157
Lys Ile Ser Ala Leu   Met Asp Thr Ser Thr   Ser Asp Leu Val Gln
            11010   11015   11020

gta aat aag gag ccg   tat aaa att atg tta   tcc gac cga cac cca 65202
Val Asn Lys Glu Pro   Tyr Lys Ile Met Leu   Ser Asp Arg His Pro
            11025   11030   11035

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Ile Ala Ser Thr Ile   Cys Phe Pro Leu Ser   Arg Tyr Leu Val Gly
            11040   11045   11050

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              11055                   11060                   11065

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Ala Glu Pro Pro Gly     Thr Asn Leu Val Val     Cys Thr Val Ser Leu
              11070                   11075                   11080

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Pro Ser His Leu Ser     Arg Val Ser Lys Arg     Ala Arg Pro Gly Glu
              11085                   11090                   11095

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Thr Val Asn Leu Pro     Phe Val Met Val Leu     Arg Asn Val Tyr Ile
              11100                   11105                   11110

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Met Leu Ile Asn Thr     Ile Ile Phe Leu Lys     Thr Asn Asn Trp His
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Ala Gly Trp Asn Thr     Leu Ser Phe Cys Asn     Asp Val Phe Lys Gln
              11130                   11135                   11140

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Lys Leu Gln Lys Ser     Glu Cys Ile Lys Leu     Arg Glu Val Pro Gly
              11145                   11150                   11155

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Ile Glu Asp Thr Leu     Phe Ala Val Leu Lys     Leu Pro Glu Leu Cys
              11160                   11165                   11170

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Gly Glu Phe Gly Asn     Ile Leu Pro Leu Trp     Ala Trp Gly Met Glu
              11175                   11180                   11185

acc ctt tca aac tgc     tca cga agc atg tct     ccg ttc gta tta tcg     65697
Thr Leu Ser Asn Cys     Ser Arg Ser Met Ser     Pro Phe Val Leu Ser
              11190                   11195                   11200

tta gaa cag aca ccc     cag cat gcg gca caa     gaa cta aaa act ctg     65742
Leu Glu Gln Thr Pro     Gln His Ala Ala Gln     Glu Leu Lys Thr Leu
              11205                   11210                   11215

cta ccc cag atg acc     ccg gca aac atg tcc     tcc ggt gca tgg aat     65787
Leu Pro Gln Met Thr     Pro Ala Asn Met Ser     Ser Gly Ala Trp Asn
              11220                   11225                   11230

ata ttg aaa gag ctt     gtt aat gcc gtt cag     gac aac act tcc taa     65832
Ile Leu Lys Glu Leu     Val Asn Ala Val Gln     Asp Asn Thr Ser
              11235                   11240

atatacctag tatttacgta tgtaccagta aaaagatgat acacattgtc atactcgcgt     65892

gtacgtgttt ttctttttta tatatgcgtc atttattacc acatccttta atcccgcctt     65952

tatctcccta aaacggagtg gtaatattaa aagccgccaa gcctgttggt gggtgaggag     66012

gggtaaaggc acgctgtgtg cataacgttg cggtgatatt gtagcgcaag taacagcgac     66072

t atg     ttt gcg cta gtt tta     gcg gtg gta att ctt     cct ctt tgg     66115
  Met     Phe Ala Leu Val Leu     Ala Val Val Ile Leu     Pro Leu Trp
  11245                   11250                   11255
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acc acg  gct aat aaa tct tac  gta aca cca acc cct  gcg act cgc  66160
Thr Thr  Ala Asn Lys Ser Tyr  Val Thr Pro Thr Pro  Ala Thr Arg
    11260                11265           11270

tct atc  gga cat atg tct gct  ctt cta cga gaa tat  tcc gac cgt  66205
Ser Ile  Gly His Met Ser Ala  Leu Leu Arg Glu Tyr  Ser Asp Arg
    11275                11280           11285

aat atg  tct ctg aaa tta gaa  gcc ttt tat cct act  ggt ttc gat  66250
Asn Met  Ser Leu Lys Leu Glu  Ala Phe Tyr Pro Thr  Gly Phe Asp
    11290                11295           11300

gaa gaa  ctc att aaa tca ctt  cac tgg gga aat gat  aga aaa cac  66295
Glu Glu  Leu Ile Lys Ser Leu  His Trp Gly Asn Asp  Arg Lys His
    11305                11310           11315

gtt ttc  ttg gtt att gtt aag  gtt aac cct aca aca  cac gaa gga  66340
Val Phe  Leu Val Ile Val Lys  Val Asn Pro Thr Thr  His Glu Gly
    11320                11325           11330

gac gtc  ggg ctg gtt ata ttt  cca aaa tac ttg tta  tcg cca tac  66385
Asp Val  Gly Leu Val Ile Phe  Pro Lys Tyr Leu Leu  Ser Pro Tyr
    11335                11340           11345

cat ttc  aaa gca gaa cat cga  gca ccg ttt cct gct  gga cgt ttt  66430
His Phe  Lys Ala Glu His Arg  Ala Pro Phe Pro Ala  Gly Arg Phe
    11350                11355           11360

gga ttt  ctt agt cac cct gtg  aca ccc gac gtg agc  ttc ttt gac  66475
Gly Phe  Leu Ser His Pro Val  Thr Pro Asp Val Ser  Phe Phe Asp
    11365                11370           11375

agt tcg  ttt gcg ccg tat tta  act acg caa cat ctt  gtt gcg ttt  66520
Ser Ser  Phe Ala Pro Tyr Leu  Thr Thr Gln His Leu  Val Ala Phe
    11380                11385           11390

act acg  ttc cca cca aac ccc  ctt gta tgg cat ttg  gaa aga gct  66565
Thr Thr  Phe Pro Pro Asn Pro  Leu Val Trp His Leu  Glu Arg Ala
    11395                11400           11405

gag acc  gca gca act gca gaa  agg ccg ttt ggg gta  agt ctt tta  66610
Glu Thr  Ala Ala Thr Ala Glu  Arg Pro Phe Gly Val  Ser Leu Leu
    11410                11415           11420

ccc gct  cgc cca aca gtc ccc  aag aat act att ctg  gaa cat aaa  66655
Pro Ala  Arg Pro Thr Val Pro  Lys Asn Thr Ile Leu  Glu His Lys
    11425                11430           11435

gcg cat  ttt gct aca tgg gat  gcc ctt gcc cga cat  act ttt ttt  66700
Ala His  Phe Ala Thr Trp Asp  Ala Leu Ala Arg His  Thr Phe Phe
    11440                11445           11450

tct gcc  gaa gca att atc acc  aac tca acg ttg aga  ata cac gtt  66745
Ser Ala  Glu Ala Ile Ile Thr  Asn Ser Thr Leu Arg  Ile His Val
    11455                11460           11465

ccc ctt  ttt ggg tcg gta tgg  cca att cga tac tgg  gcc acc ggt  66790
Pro Leu  Phe Gly Ser Val Trp  Pro Ile Arg Tyr Trp  Ala Thr Gly
    11470                11475           11480

tcg gtg  ctt ctc aca agc gac  tcg ggt cgt gtg gaa  gta aat att  66835
Ser Val  Leu Leu Thr Ser Asp  Ser Gly Arg Val Glu  Val Asn Ile
    11485                11490           11495
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ggt gta  gga ttt atg agc tcg  ctc att tct tta tcc  tct gga cca  66880
Gly Val  Gly Phe Met Ser Ser  Leu Ile Ser Leu Ser  Ser Gly Pro
11500        11505             11510

ccg ata  gaa tta att gtt gta  cca cat aca gta aaa  ctg aac gcg  66925
Pro Ile  Glu Leu Ile Val Val  Pro His Thr Val Lys  Leu Asn Ala
11515        11520             11525

gtt aca  agc gac acc aca tgg  ttc cag cta aat cca  ccg ggt ccg  66970
Val Thr  Ser Asp Thr Thr Trp  Phe Gln Leu Asn Pro  Pro Gly Pro
11530        11535             11540

gat ccg  ggg cca tct tat cga  gtt tat tta ctt gga  cgt ggg ttg  67015
Asp Pro  Gly Pro Ser Tyr Arg  Val Tyr Leu Leu Gly  Arg Gly Leu
11545        11550             11555

gat atg  aat ttt tca aag cat  gct acg gtc gat ata  tgc gca tat  67060
Asp Met  Asn Phe Ser Lys His  Ala Thr Val Asp Ile  Cys Ala Tyr
11560        11565             11570

ccc gaa  gag agt ttg gat tac  cgc tat cat tta tcc  atg gcc cac  67105
Pro Glu  Glu Ser Leu Asp Tyr  Arg Tyr His Leu Ser  Met Ala His
11575        11580             11585

acg gag  gct ctg cgg atg aca  acg aag gcg gat caa  cat gac ata  67150
Thr Glu  Ala Leu Arg Met Thr  Thr Lys Ala Asp Gln  His Asp Ile
11590        11595             11600

aac gag  gaa agc tat tac cat  atc gcc gca aga ata  gcc aca tca  67195
Asn Glu  Glu Ser Tyr Tyr His  Ile Ala Ala Arg Ile  Ala Thr Ser
11605        11610             11615

att ttt  gcg ttg tcg gaa atg  ggc cgt acc aca gaa  tat ttt ctg  67240
Ile Phe  Ala Leu Ser Glu Met  Gly Arg Thr Thr Glu  Tyr Phe Leu
11620        11625             11630

tta gat  gag atc gta gat gtt  cag tat caa tta aaa  ttc ctt aat  67285
Leu Asp  Glu Ile Val Asp Val  Gln Tyr Gln Leu Lys  Phe Leu Asn
11635        11640             11645

tac att  tta atg cgg ata gga  gca gga gct cat ccc  aac act ata  67330
Tyr Ile  Leu Met Arg Ile Gly  Ala Gly Ala His Pro  Asn Thr Ile
11650        11655             11660

tcc gga  acc tcg gat ctg atc  ttt gcc gat cca tcg  cag ctt cat  67375
Ser Gly  Thr Ser Asp Leu Ile  Phe Ala Asp Pro Ser  Gln Leu His
11665        11670             11675

gac gaa  ctt tca ctt ctt ttt  ggt cag gta aaa ccc  gca aat gtc  67420
Asp Glu  Leu Ser Leu Leu Phe  Gly Gln Val Lys Pro  Ala Asn Val
11680        11685             11690

gat tat  ttt att tca tat gat  gaa gcc cgt gat caa  cta aag acc  67465
Asp Tyr  Phe Ile Ser Tyr Asp  Glu Ala Arg Asp Gln  Leu Lys Thr
11695        11700             11705

gca tac  gcg ctt tcc cgt ggt  caa gac cat gtg aat  gca ctt tct  67510
Ala Tyr  Ala Leu Ser Arg Gly  Gln Asp His Val Asn  Ala Leu Ser
11710        11715             11720

ctc gcc  agg cgt gtt ata atg  agc ata tac aag ggg  ctg ctt gtg  67555
Leu Ala  Arg Arg Val Ile Met  Ser Ile Tyr Lys Gly  Leu Leu Val
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      11725                        11730                        11735
aag caa  aat tta aat gct aca   gag agg cag gct tta   ttt ttt gcc  67600
Lys Gln  Asn Leu Asn Ala Thr   Glu Arg Gln Ala Leu   Phe Phe Ala
      11740                        11745                        11750

tca atg  att tta tta aat ttc   cgc gaa gga cta gaa   aat tca tct  67645
Ser Met  Ile Leu Leu Asn Phe   Arg Glu Gly Leu Glu   Asn Ser Ser
      11755                        11760                        11765

cgg gta  tta gac ggt cgc aca   act ttg ctt tta atg   aca tcc atg  67690
Arg Val  Leu Asp Gly Arg Thr   Thr Leu Leu Leu Met   Thr Ser Met
      11770                        11775                        11780

tgt acg  gca gct cac gcc acg   caa gca gca ctt aac   ata caa gaa  67735
Cys Thr  Ala Ala His Ala Thr   Gln Ala Ala Leu Asn   Ile Gln Glu
      11785                        11790                        11795

ggc ctg  gca tac tta aat cct   tca aaa cac atg ttt   aca ata cca  67780
Gly Leu  Ala Tyr Leu Asn Pro   Ser Lys His Met Phe   Thr Ile Pro
      11800                        11805                        11810

aac gta  tac agt cct tgt atg   ggt tcc ctt cgt aca   gac ctc acg  67825
Asn Val  Tyr Ser Pro Cys Met   Gly Ser Leu Arg Thr   Asp Leu Thr
      11815                        11820                        11825

gaa gag  att cat gtt atg aat   ctc ctg tcg gca ata   cca aca cgc  67870
Glu Glu  Ile His Val Met Asn   Leu Leu Ser Ala Ile   Pro Thr Arg
      11830                        11835                        11840

cca gga  ctt aac gag gta ttg   cat acc caa cta gac   gaa tct gaa  67915
Pro Gly  Leu Asn Glu Val Leu   His Thr Gln Leu Asp   Glu Ser Glu
      11845                        11850                        11855

ata ttc  gac gcg gca ttt aaa   acc atg atg att ttt   acc aca tgg  67960
Ile Phe  Asp Ala Ala Phe Lys   Thr Met Met Ile Phe   Thr Thr Trp
      11860                        11865                        11870

act gcc  aaa gat ttg cat ata   ctc cac acc cat gta   cca gaa gta  68005
Thr Ala  Lys Asp Leu His Ile   Leu His Thr His Val   Pro Glu Val
      11875                        11880                        11885

ttt acg  tgt caa gat gca gcc   gcg cgt aac gga gaa   tat gtg ctc  68050
Phe Thr  Cys Gln Asp Ala Ala   Ala Arg Asn Gly Glu   Tyr Val Leu
      11890                        11895                        11900

att ctt  cca gct gtc cag gga   cac agt tat gtg att   aca cga aac  68095
Ile Leu  Pro Ala Val Gln Gly   His Ser Tyr Val Ile   Thr Arg Asn
      11905                        11910                        11915

aaa cct  caa agg ggt ttg gta   tat tcc ctg gca gat   gtg gat gta  68140
Lys Pro  Gln Arg Gly Leu Val   Tyr Ser Leu Ala Asp   Val Asp Val
      11920                        11925                        11930

tat aac  ccc ata tcc gtt gtt   tat tta agc agg gat   act tgc gtg  68185
Tyr Asn  Pro Ile Ser Val Val   Tyr Leu Ser Arg Asp   Thr Cys Val
      11935                        11940                        11945

tct gaa  cat ggt gtc ata gag   acg gtc gca ctg ccc   cat ccg gac  68230
Ser Glu  His Gly Val Ile Glu   Thr Val Ala Leu Pro   His Pro Asp
      11950                        11955                        11960

aat tta  aaa gaa tgt ttg tat   tgc gga agt gtt ttt   ctt agg tat  68275
Asn Leu  Lys Glu Cys Leu Tyr   Cys Gly Ser Val Phe   Leu Arg Tyr
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Asn Leu  Lys Glu Cys Leu Tyr  Cys Gly Ser Val Phe  Leu Arg Tyr
    11965                11970                11975

cta acc  acg ggg gcg att atg  gat ata att att att  gac agc aaa  68320
Leu Thr  Thr Gly Ala Ile Met  Asp Ile Ile Ile Ile  Asp Ser Lys
    11980                11985                11990

gat aca  gaa cga caa cta gcc  gct atg gga aac tcc  aca att cca  68365
Asp Thr  Glu Arg Gln Leu Ala  Ala Met Gly Asn Ser  Thr Ile Pro
    11995                12000                12005

ccc ttc  aat cca gac atg cac  ggg gat gac tct aag  gct gtg ttg  68410
Pro Phe  Asn Pro Asp Met His  Gly Asp Asp Ser Lys  Ala Val Leu
    12010                12015                12020

ttg ttt  cca aac gga act gtg  gta acg ctt cta gga  ttc gaa cga  68455
Leu Phe  Pro Asn Gly Thr Val  Val Thr Leu Leu Gly  Phe Glu Arg
    12025                12030                12035

cga caa  gcc ata cga atg tcg  gga caa tac ctt ggg  gcc tct tta  68500
Arg Gln  Ala Ile Arg Met Ser  Gly Gln Tyr Leu Gly  Ala Ser Leu
    12040                12045                12050

gga ggg  gcg ttt ctg gcg gta  gtg ggg ttt ggt att  atc gga tgg  68545
Gly Gly  Ala Phe Leu Ala Val  Val Gly Phe Gly Ile  Ile Gly Trp
    12055                12060                12065

atg tta  tgt gga aat tcc cgc  ctt cga gaa tat aat  aaa ata cct  68590
Met Leu  Cys Gly Asn Ser Arg  Leu Arg Glu Tyr Asn  Lys Ile Pro
    12070                12075                12080

ctg aca  taa aaaacatgta taataaaaag tcactataaa cgtattctct        68639
Leu Thr
    12085
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acaatacttt attcgcgaat aatacacact acctttgggt ttttttcccg tccccaaatg 68699

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caaaatacgg ttcaaaggca ttacccgata ttgtattgta gtacagggca atgggaattg 68819

atgatcccaa taaacggcat agacgcacag cgccgttata gcaggggtct ccagagtaca 68879

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acagtatata ttgaacaatc acgaaccgtt gacaggacgt cagatcacgt ccgtaagcat 69299

gcccgaaaaa tggaagttcc ccccgttcgc catataccgc aacaactgca gtatatatcg 69359

tctcacgggc ttcattaagt tcatcttcaa gtccaggcca ttttctggct ttaaatataa 69419

cctcgtccgc aaaaaaaacc gcacatgata acgcgcggat acaatgagta gtggctttat 69479

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ggcgaggatc ccaaatgtcc attacccggg ggatggtcct aatctgtaca aagttactta   69539

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aaatcggcac atcatctgct tttacgtctt ccgtaaccac atcagcagcg cgccgactaa   69659

caattatact tgtttttttca tcgtcgttac ttccgttaag cgcgtctcgt atctcgggcg   69719

tcccgtcgaa taatccactc actagctcct gcaaactttc tggtaactcc aacatacgca   69779

tatacaccaa tgaaaaactg gcttcgtttg gtacgtacat aaagccattt gtggtattaa   69839

tggcggtggg tgttggaaac aattttagct tattctcgcg cgtaacatct accccgcca   69899

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cttcaacatc aaatgttccg caaaggtcgc gatccaccgc ccccgatccc gctgcaagta   70019

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tctacataat acaaggatcg gctttaactt tgtcaacatt tttactttgg actataaact   70619
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gcgactgaac gtt atg aac cca ccc caa     gcc cgc gtc tcg gaa     cag       70665
              Met Asn Pro Pro Gln     Ala Arg Val Ser Glu     Gln
                          12090                   12095

aca aag gac ttg     ctt agc gtt atg gtt     aac cag cac ccc gaa     gag   70710
Thr Lys Asp Leu     Leu Ser Val Met Val     Asn Gln His Pro Glu     Glu
            12100                   12105                   12110

gac gca aaa gtg     tgt aaa tcc agt gat     aat tca ccg ctt tat     aac   70755
Asp Ala Lys Val     Cys Lys Ser Ser Asp     Asn Ser Pro Leu Tyr     Asn
            12115                   12120                   12125

acc atg gtt atg     tta tcg tat ggg ggt     gat acg gac tta cta     tta   70800
Thr Met Val Met     Leu Ser Tyr Gly Gly     Asp Thr Asp Leu Leu     Leu
            12130                   12135                   12140

agc tct gca tgt     acc cgc aca tct acc     gta aac agg tcg gcg     ttt   70845
Ser Ser Ala Cys     Thr Arg Thr Ser Thr     Val Asn Arg Ser Ala     Phe
            12145                   12150                   12155

acg caa cac tcc     gtg ttt tat att ata     tcc acg gtg ttg att     caa   70890
Thr Gln His Ser     Val Phe Tyr Ile Ile     Ser Thr Val Leu Ile     Gln
            12160                   12165                   12170

cca ata tgt tgt     atc ttc ttt ttt ttt     tac tat aaa gcg aca     cgc   70935
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Pro Ile Cys Cys   Ile Phe Phe Phe Phe   Tyr Tyr Lys Ala Thr   Arg
            12175                12180                12185

tgt atg ctc tta   ttc aca gcc ggg tta   ctt ctg acg att cta   cat   70980
Cys Met Leu Leu   Phe Thr Ala Gly Leu   Leu Leu Thr Ile Leu   His
            12190                12195                12200

cac ttt cga ctt   att att atg tta ttg   tgt gtc tac aga aat   ata   71025
His Phe Arg Leu   Ile Ile Met Leu Leu   Cys Val Tyr Arg Asn   Ile
            12205                12210                12215

cga tca gac ctg   cta ccc tta tct aca   tcc cag caa ctg ctg   ctt   71070
Arg Ser Asp Leu   Leu Pro Leu Ser Thr   Ser Gln Gln Leu Leu   Leu
            12220                12225                12230

gga att att gtt   gtg act cga aca atg   cta ttt tgt att acg   gcg   71115
Gly Ile Ile Val   Val Thr Arg Thr Met   Leu Phe Cys Ile Thr   Ala
            12235                12240                12245

tat tat act ctt   ttt ata gac acc cgg   gtg ttc ttt ttg att   acc   71160
Tyr Tyr Thr Leu   Phe Ile Asp Thr Arg   Val Phe Phe Leu Ile   Thr
            12250                12255                12260

gga cac ttg caa   agt gag gtt att ttt   cca gat agc gtt tca   aaa   71205
Gly His Leu Gln   Ser Glu Val Ile Phe   Pro Asp Ser Val Ser   Lys
            12265                12270                12275

ata ctt cct gtg   tcg tgg ggt cca agt   cca gcc gtg tta ctg   gta   71250
Ile Leu Pro Val   Ser Trp Gly Pro Ser   Pro Ala Val Leu Leu   Val
            12280                12285                12290

atg gcg gca gtt   att tac gct atg gac   tgt ttg gtg gac acg   gta   71295
Met Ala Ala Val   Ile Tyr Ala Met Asp   Cys Leu Val Asp Thr   Val
            12295                12300                12305

tcc ttt att ggg   cca agg gtg tgg gtc   cgt gtt atg tta aaa   aca   71340
Ser Phe Ile Gly   Pro Arg Val Trp Val   Arg Val Met Leu Lys   Thr
            12310                12315                12320

tct att tcg ttt   tag tccatttcaa taaatgtact ataattgttc agtctaaaaa   71395
Ser Ile Ser Phe
            12325

taatgttggg tatttataat taccgccccc gtgttacttg gaaacaccca tacatatgtt   71455

ccactctaca tcaaacttct cgcagttttc ttgttcccgc acacgtttac acgtccggat   71515

tcaagtcgca acgctgctga caaa atg aca acg gtt tca   tgt ccc gct aac   71566
                         Met Thr Thr Val Ser   Cys Pro Ala Asn
                                  12330

gtg   att act aca acg gaa   tct gat cgt att gct   ggg tta ttt aac   71611
Val   Ile Thr Thr Thr Glu   Ser Asp Arg Ile Ala   Gly Leu Phe Asn
12335                12340                12345

atc   cca gcg ggg atc att   cca act gga aat gtg   ctg tca acc ata   71656
Ile   Pro Ala Gly Ile Ile   Pro Thr Gly Asn Val   Leu Ser Thr Ile
12350                12355                12360

gag   gtg tgt gca cac cgt   tgc att ttt gat ttt   ttt aaa caa ata   71701
Glu   Val Cys Ala His Arg   Cys Ile Phe Asp Phe   Phe Lys Gln Ile
12365                12370                12375
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cga   tca gat gat aac agc   ctt tac tcg gct caa   ttc gat att ctt   71746
Arg   Ser Asp Asp Asn Ser   Leu Tyr Ser Ala Gln   Phe Asp Ile Leu
12380                 12385                 12390

ttg   ggg aca tac tgc aat   aca tta aac ttt gtg   cgt ttt cta gaa   71791
Leu   Gly Thr Tyr Cys Asn   Thr Leu Asn Phe Val   Arg Phe Leu Glu
12395                 12400                 12405

ctt   gga ctg tct gtc gct   tgc atc tgt act aaa   ttt ccg gag ctg   71836
Leu   Gly Leu Ser Val Ala   Cys Ile Cys Thr Lys   Phe Pro Glu Leu
12410                 12415                 12420

gct   tac gtg cga gat ggc   gtt att caa ttt gag   gta caa caa ccc   71881
Ala   Tyr Val Arg Asp Gly   Val Ile Gln Phe Glu   Val Gln Gln Pro
12425                 12430                 12435

atg   ata gca cgt gat ggc   cca cat ccc gtc gat   cag cct gtt cat   71926
Met   Ile Ala Arg Asp Gly   Pro His Pro Val Asp   Gln Pro Val His
12440                 12445                 12450

aat   tat atg gtt aag cgg   ata cac aag cgt tcg   tta agc gct gcg   71971
Asn   Tyr Met Val Lys Arg   Ile His Lys Arg Ser   Leu Ser Ala Ala
12455                 12460                 12465

ttt   gca att gca tcg gaa   gcg ttg agt ttg tta   agt aac aca tat   72016
Phe   Ala Ile Ala Ser Glu   Ala Leu Ser Leu Leu   Ser Asn Thr Tyr
12470                 12475                 12480

gtc   gat ggg aca gag att   gac tca tcg tta cgt   ata aga gct atc   72061
Val   Asp Gly Thr Glu Ile   Asp Ser Ser Leu Arg   Ile Arg Ala Ile
12485                 12490                 12495

caa   cag atg gct cgt aat   tta cgc acc gtt ttg   gac tca ttt gaa   72106
Gln   Gln Met Ala Arg Asn   Leu Arg Thr Val Leu   Asp Ser Phe Glu
12500                 12505                 12510

cga   ggc act gcc gat caa   ctt ctt ggt gtt cta   ttg gag aaa gcc   72151
Arg   Gly Thr Ala Asp Gln   Leu Leu Gly Val Leu   Leu Glu Lys Ala
12515                 12520                 12525

cca   ccg cta tcg ctg ctt   tca cca att aat aaa   ttc caa ccc gag   72196
Pro   Pro Leu Ser Leu Leu   Ser Pro Ile Asn Lys   Phe Gln Pro Glu
12530                 12535                 12540

gga   cat cta aat cgt gtt   gca cgc gcg gcc cta   ctt tcg gac ctc   72241
Gly   His Leu Asn Arg Val   Ala Arg Ala Ala Leu   Leu Ser Asp Leu
12545                 12550                 12555

aaa   cgt aga gtc tgt gcg   gat atg ttt ttt atg   acc cga cac gcc   72286
Lys   Arg Arg Val Cys Ala   Asp Met Phe Phe Met   Thr Arg His Ala
12560                 12565                 12570

agg   gaa cct agg ctg atc   tct gcg tat ctg tcg   gat atg gtt tcg   72331
Arg   Glu Pro Arg Leu Ile   Ser Ala Tyr Leu Ser   Asp Met Val Ser
12575                 12580                 12585

tgc   acc caa cca tcg gtg   atg gta tca cga ata   act cat aca aac   72376
Cys   Thr Gln Pro Ser Val   Met Val Ser Arg Ile   Thr His Thr Asn
12590                 12595                 12600

act   cgc gga cgg cag gtt   gac ggt gtg ttg gta   aca aca gca acc   72421
Thr   Arg Gly Arg Gln Val   Asp Gly Val Leu Val   Thr Thr Ala Thr
12605                 12610                 12615
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tta  aaa cgg caa cta tta  cag gga att tta caa  att gac gac acc  72466
Leu  Lys Arg Gln Leu Leu  Gln Gly Ile Leu Gln  Ile Asp Asp Thr
12620               12625               12630

gcc  gct gac gta cca gta  aca tat ggc gaa atg  gtt cta cag ggg  72511
Ala  Ala Asp Val Pro Val  Thr Tyr Gly Glu Met  Val Leu Gln Gly
12635               12640               12645

aca  aac ttg gta acc gcc  ctt gtg atg gga aag  gcc gtc cgc gga  72556
Thr  Asn Leu Val Thr Ala  Leu Val Met Gly Lys  Ala Val Arg Gly
12650               12655               12660

atg  gat gat gta gcc cgc  cat ctc ctt gat ata  acc gac cct aac  72601
Met  Asp Asp Val Ala Arg  His Leu Leu Asp Ile  Thr Asp Pro Asn
12665               12670               12675

acg  tta aac ata ccg tct  ata ccc cca caa tcc  aac tcc gat tca  72646
Thr  Leu Asn Ile Pro Ser  Ile Pro Pro Gln Ser  Asn Ser Asp Ser
12680               12685               12690

acg  aca gct ggg ctt ccg  gtt aac gcc cgt gtt  cct gcg gat tta  72691
Thr  Thr Ala Gly Leu Pro  Val Asn Ala Arg Val  Pro Ala Asp Leu
12695               12700               12705

gtg  att gtt ggg gat aaa  ctt gta ttc tta gaa  gca tta gaa cgg  72736
Val  Ile Val Gly Asp Lys  Leu Val Phe Leu Glu  Ala Leu Glu Arg
12710               12715               12720

cgg  gtc tac caa gct acg  cgc gtt gcc tac cct  ctt att gga aat  72781
Arg  Val Tyr Gln Ala Thr  Arg Val Ala Tyr Pro  Leu Ile Gly Asn
12725               12730               12735

ata  gat att acg ttt atc  atg cca atg gga gtg  ttt cag gca aac  72826
Ile  Asp Ile Thr Phe Ile  Met Pro Met Gly Val  Phe Gln Ala Asn
12740               12745               12750

tcc  atg gac aga tat aca  cga cac gcc ggc gat  ttt tca act gta  72871
Ser  Met Asp Arg Tyr Thr  Arg His Ala Gly Asp  Phe Ser Thr Val
12755               12760               12765

tcc  gaa cag gat cca cgt  caa ttt cca ccc caa  ggg att ttt ttt  72916
Ser  Glu Gln Asp Pro Arg  Gln Phe Pro Pro Gln  Gly Ile Phe Phe
12770               12775               12780

tat  aat aaa gat ggg ata  tta aca cag ttg act  ctt cgt gat gca  72961
Tyr  Asn Lys Asp Gly Ile  Leu Thr Gln Leu Thr  Leu Arg Asp Ala
12785               12790               12795

atg  ggt acc atc tgc cac  agt tca ttg ctt gat  gtc gag gcc aca  73006
Met  Gly Thr Ile Cys His  Ser Ser Leu Leu Asp  Val Glu Ala Thr
12800               12805               12810

ctt  gtt gcc ctc cgc caa  caa cat tta gat cgt  cag tgt tat ttt  73051
Leu  Val Ala Leu Arg Gln  Gln His Leu Asp Arg  Gln Cys Tyr Phe
12815               12820               12825

ggt  gta tac gtg gcc gag  ggt aca gag gac aca  ttg gat gtt caa  73096
Gly  Val Tyr Val Ala Glu  Gly Thr Glu Asp Thr  Leu Asp Val Gln
12830               12835               12840

atg  ggg agg ttt atg gaa  acg tgg gca gat atg  atg cct cat cac  73141
Met  Gly Arg Phe Met Glu  Thr Trp Ala Asp Met  Met Pro His His
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12845                    12850                              12855

cct  cat tgg gta aac gaa  cat tta aca att cta  cag ttt ata gct  73186
Pro  His Trp Val Asn Glu  His Leu Thr Ile Leu  Gln Phe Ile Ala
12860                    12865                  12870

ccg  agc aac ccg cgt cta  agg ttt gaa tta aac  ccc gcc ttt gat  73231
Pro  Ser Asn Pro Arg Leu  Arg Phe Glu Leu Asn  Pro Ala Phe Asp
12875                    12880                  12885

ttt  ttt gtt gca ccg ggg  gac gta gac ctt ccc  gga ccg cag cgt  73276
Phe  Phe Val Ala Pro Gly  Asp Val Asp Leu Pro  Gly Pro Gln Arg
12890                    12895                  12900

ccc  ccg gaa gcc atg cca  acc gtt aac gca aca  tta cgg att atc  73321
Pro  Pro Glu Ala Met Pro  Thr Val Asn Ala Thr  Leu Arg Ile Ile
12905                    12910                  12915

aac  gga aac att ccc gtg  cct cta tgt ccc att  tca ttt cga gac  73366
Asn  Gly Asn Ile Pro Val  Pro Leu Cys Pro Ile  Ser Phe Arg Asp
12920                    12925                  12930

tgt  cgc gga acc caa ctc  ggt ttg gga aga cat  aca atg acc ccg  73411
Cys  Arg Gly Thr Gln Leu  Gly Leu Gly Arg His  Thr Met Thr Pro
12935                    12940                  12945

gca  acc att aaa gcc gta  aag gat aca ttt gaa  gac cgc gca tac  73456
Ala  Thr Ile Lys Ala Val  Lys Asp Thr Phe Glu  Asp Arg Ala Tyr
12950                    12955                  12960

cca  act att ttc tac atg  cta gag gct gtt att  cat gga aac gaa  73501
Pro  Thr Ile Phe Tyr Met  Leu Glu Ala Val Ile  His Gly Asn Glu
12965                    12970                  12975

aga  aac ttc tgt gcg tta  ctg cga ctg tta aca  cag tgt att cgc  73546
Arg  Asn Phe Cys Ala Leu  Leu Arg Leu Leu Thr  Gln Cys Ile Arg
12980                    12985                  12990

ggg  tat tgg gag caa tcc  cac agg gtg gca ttt  gta aat aac ttt  73591
Gly  Tyr Trp Glu Gln Ser  His Arg Val Ala Phe  Val Asn Asn Phe
12995                    13000                  13005

cac  atg tta atg tac ata  act aca tat ctc gga  aac ggt gag ctt  73636
His  Met Leu Met Tyr Ile  Thr Thr Tyr Leu Gly  Asn Gly Glu Leu
13010                    13015                  13020

ccc  gaa gtc tgt att aat  ata tat cgg gat tta  ctg cag cat gta  73681
Pro  Glu Val Cys Ile Asn  Ile Tyr Arg Asp Leu  Leu Gln His Val
13025                    13030                  13035

aga  gca tta cgc caa act  ata acc gat ttt aca  ata caa gga gag  73726
Arg  Ala Leu Arg Gln Thr  Ile Thr Asp Phe Thr  Ile Gln Gly Glu
13040                    13045                  13050

ggc  cat aac ggc gag acc  tcg gaa gcg cta aat  aac atc ctt acg  73771
Gly  His Asn Gly Glu Thr  Ser Glu Ala Leu Asn  Asn Ile Leu Thr
13055                    13060                  13065

gat  gac acg ttt att gca  cct att cta tgg gat  tgt gat gcg tta  73816
Asp  Asp Thr Phe Ile Ala  Pro Ile Leu Trp Asp  Cys Asp Ala Leu
13070                    13075                  13080

ata  tac cgt gat gaa gcc  gcc cga gac cga ctc  ccc gca att cgt  73861
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Ile  Tyr Arg Asp Glu Ala  Ala Arg Asp Arg Leu  Pro Ala Ile Arg
13085             13090                13095

gta  agc ggg cga aac gga  tac caa gcc ctt cac  ttt gtg gat atg  73906
Val  Ser Gly Arg Asn Gly  Tyr Gln Ala Leu His  Phe Val Asp Met
13100             13105                13110

gcc  ggg cat aac ttc caa  cga cgc gat aat gtg  tta atc cac ggg  73951
Ala  Gly His Asn Phe Gln  Arg Arg Asp Asn Val  Leu Ile His Gly
13115             13120                13125

aga  ccc gtt cgg gga gac  acg ggt cag ggt att  ccc att act cca  73996
Arg  Pro Val Arg Gly Asp  Thr Gly Gln Gly Ile  Pro Ile Thr Pro
13130             13135                13140

cac  cat gac cgt gaa tgg  ggt att ctc tcc aag  att tac tac tat  74041
His  His Asp Arg Glu Trp  Gly Ile Leu Ser Lys  Ile Tyr Tyr Tyr
13145             13150                13155

att  gtc att cct gca ttt  tcc cgc ggt tcc tgt  tgt aca atg ggc  74086
Ile  Val Ile Pro Ala Phe  Ser Arg Gly Ser Cys  Cys Thr Met Gly
13160             13165                13170

gtg  cgt tat gat cgc cta  tac cct gcg tta cag  gca gtt atc gtt  74131
Val  Arg Tyr Asp Arg Leu  Tyr Pro Ala Leu Gln  Ala Val Ile Val
13175             13180                13185

ccg  gaa att ccc gct gat  gaa gaa gcc cca act  acc cca gaa gat  74176
Pro  Glu Ile Pro Ala Asp  Glu Glu Ala Pro Thr  Thr Pro Glu Asp
13190             13195                13200

cca  aga cac cct ctt cac  gca cac caa ctc gtt  ccg aac tct ctt  74221
Pro  Arg His Pro Leu His  Ala His Gln Leu Val  Pro Asn Ser Leu
13205             13210                13215

aac  gtt tac ttc cat aat  gca cac cta acc gtt  gat ggt gat gca  74266
Asn  Val Tyr Phe His Asn  Ala His Leu Thr Val  Asp Gly Asp Ala
13220             13225                13230

ttg  ctc aca cta caa gag  tta atg gga gat atg  gct gaa cga acg  74311
Leu  Leu Thr Leu Gln Glu  Leu Met Gly Asp Met  Ala Glu Arg Thr
13235             13240                13245

acg  gcc att tta gta tca  agc gcc ccc gat gcg  gga gcc gcc acg  74356
Thr  Ala Ile Leu Val Ser  Ser Ala Pro Asp Ala  Gly Ala Ala Thr
13250             13255                13260

gca  aca acc aga aat atg  aga ata tat gac gga  gcg ctt tac cat  74401
Ala  Thr Thr Arg Asn Met  Arg Ile Tyr Asp Gly  Ala Leu Tyr His
13265             13270                13275

ggc  ctt att atg atg gca  tat cag gcg tac gat  gaa acc att gca  74446
Gly  Leu Ile Met Met Ala  Tyr Gln Ala Tyr Asp  Glu Thr Ile Ala
13280             13285                13290

acg  ggt act ttt ttt tat  ccc gtt ccg gtc aac  cct ctg ttt gca  74491
Thr  Gly Thr Phe Phe Tyr  Pro Val Pro Val Asn  Pro Leu Phe Ala
13295             13300                13305

tgt  ccg gaa cat ttg gca  tca ttg cgt gga atg  aca aat gct agg  74536
Cys  Pro Glu His Leu Ala  Ser Leu Arg Gly Met  Thr Asn Ala Arg
13310             13315                13320
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cgg   gtt ttg gca aaa atg   gta cca cca atc cct   cct ttt ctg gga   74581
Arg   Val Leu Ala Lys Met   Val Pro Pro Ile Pro   Pro Phe Leu Gly
13325             13330                 13335

gcc   aac cac cac gca act   ata cgc caa ccc gtt   gcc tac cat gta   74626
Ala   Asn His His Ala Thr   Ile Arg Gln Pro Val   Ala Tyr His Val
13340             13345                 13350

acg   cat agt aag tcg gat   ttt aat act ctt aca   tat tct ctt ctt   74671
Thr   His Ser Lys Ser Asp   Phe Asn Thr Leu Thr   Tyr Ser Leu Leu
13355             13360                 13365

gga   ggg tat ttt aag ttt   aca cca ata tct ctt   aca cat caa cta   74716
Gly   Gly Tyr Phe Lys Phe   Thr Pro Ile Ser Leu   Thr His Gln Leu
13370             13375                 13380

cga   acg gga ttt cac ccc   ggg att gcc ttt acc   gta gtg cgc cag   74761
Arg   Thr Gly Phe His Pro   Gly Ile Ala Phe Thr   Val Val Arg Gln
13385             13390                 13395

gat   cgc ttt gcc aca gag   caa ctt tta tat gcc   gag cgt gct tct   74806
Asp   Arg Phe Ala Thr Glu   Gln Leu Leu Tyr Ala   Glu Arg Ala Ser
13400             13405                 13410

gaa   tcg tac ttt gtc gga   caa atc caa gta cac   cat cat gat gct   74851
Glu   Ser Tyr Phe Val Gly   Gln Ile Gln Val His   His His Asp Ala
13415             13420                 13425

att   ggg ggg gta aac ttt   acc cta acc caa ccc   aga gct cac gtg   74896
Ile   Gly Gly Val Asn Phe   Thr Leu Thr Gln Pro   Arg Ala His Val
13430             13435                 13440

gac   ctg gga gtc ggg tat   aca gct gta tgt gcc   aca gca gcc ctg   74941
Asp   Leu Gly Val Gly Tyr   Thr Ala Val Cys Ala   Thr Ala Ala Leu
13445             13450                 13455

cga   tgc cct ctc acg gat   atg ggc aat act gcc   caa aat ctt ttt   74986
Arg   Cys Pro Leu Thr Asp   Met Gly Asn Thr Ala   Gln Asn Leu Phe
13460             13465                 13470

ttt   tca cga gga gga gtg   cca atg tta cat gat   aac gtt acc gaa   75031
Phe   Ser Arg Gly Gly Val   Pro Met Leu His Asp   Asn Val Thr Glu
13475             13480                 13485

tcg   ttg cgt cgt ata aca   gca tcg ggg ggt cgc   tta aat ccc acc   75076
Ser   Leu Arg Arg Ile Thr   Ala Ser Gly Gly Arg   Leu Asn Pro Thr
13490             13495                 13500

gaa   ccc cta ccc atc ttc   ggc gga cta cgt cct   gct aca tcg gca   75121
Glu   Pro Leu Pro Ile Phe   Gly Gly Leu Arg Pro   Ala Thr Ser Ala
13505             13510                 13515

gga   att gca cga ggg caa   gcc tct gtg tgt gag   ttt gtg gcc atg   75166
Gly   Ile Ala Arg Gly Gln   Ala Ser Val Cys Glu   Phe Val Ala Met
13520             13525                 13530

ccg   gtg tcc act gac cta   caa tat ttt aga act   gca tgc aat cct   75211
Pro   Val Ser Thr Asp Leu   Gln Tyr Phe Arg Thr   Ala Cys Asn Pro
13535             13540                 13545

aga   ggt cga gca tct gga   atg tta tat atg ggt   gac cgt gac gcc   75256
Arg   Gly Arg Ala Ser Gly   Met Leu Tyr Met Gly   Asp Arg Asp Ala
13550             13555                 13560
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gac    ata gag gct ata atg    ttt gat cac aca caa    tcg gat gtt gct    75301
Asp    Ile Glu Ala Ile Met    Phe Asp His Thr Gln    Ser Asp Val Ala
13565              13570              13575

tat    aca gat cga gca act    ctt aac cca tgg gca    tca caa aaa cat    75346
Tyr    Thr Asp Arg Ala Thr    Leu Asn Pro Trp Ala    Ser Gln Lys His
13580              13585              13590

tca    tac ggt gac agg cta    tac aac gga aca tac    aac ctt aca ggc    75391
Ser    Tyr Gly Asp Arg Leu    Tyr Asn Gly Thr Tyr    Asn Leu Thr Gly
13595              13600              13605

gct    tct cct atc tac agc    cca tgc ttt aag ttt    ttt aca cca gcg    75436
Ala    Ser Pro Ile Tyr Ser    Pro Cys Phe Lys Phe    Phe Thr Pro Ala
13610              13615              13620

gag    gtt aac act aat tgt    aat aca ctg gat cgg    ctt cta atg gag    75481
Glu    Val Asn Thr Asn Cys    Asn Thr Leu Asp Arg    Leu Leu Met Glu
13625              13630              13635

gca    aag gct gtg gcg tcg    caa agc tcc acc gac    act gaa tat caa    75526
Ala    Lys Ala Val Ala Ser    Gln Ser Ser Thr Asp    Thr Glu Tyr Gln
13640              13645              13650

ttt    aaa cgc cct ccc ggt    tct acc gaa atg aca    cag gat ccg tgt    75571
Phe    Lys Arg Pro Pro Gly    Ser Thr Glu Met Thr    Gln Asp Pro Cys
13655              13660              13665

ggc    ctt ttt caa gaa gca    tat cca cca cta tgc    tca agc gat gcg    75616
Gly    Leu Phe Gln Glu Ala    Tyr Pro Pro Leu Cys    Ser Ser Asp Ala
13670              13675              13680

gcc    atg tta cga acg gct    cac gcg gga gaa acc    ggg gca gat gaa    75661
Ala    Met Leu Arg Thr Ala    His Ala Gly Glu Thr    Gly Ala Asp Glu
13685              13690              13695

gtt    cac tta gcc caa tat    ctg att cga gac gcg    tcg ccc ctt agg    75706
Val    His Leu Ala Gln Tyr    Leu Ile Arg Asp Ala    Ser Pro Leu Arg
13700              13705              13710

gga    tgt ctt cct ctt ccg    cga taa tttcaccacg cccacatacc             75750
Gly    Cys Leu Pro Leu Pro    Arg
13715              13720

cactcccaat aaaagccctg tagagcgcat tggcatctta cttgagattt ggatacgctc    75810

ggccgacttg gtctgtttca cgcttcctta aacaac atg gct atg cca    ttt gag    75864
                                          Met Ala Met Pro    Phe Glu
                                                    13725

ata gag gta    ttg tta cca gga gaa    cta tcc ccg gcg gaa    aca tct    75909
Ile Glu Val    Leu Leu Pro Gly Glu    Leu Ser Pro Ala Glu    Thr Ser
           13730              13735              13740

gca tta cag    aaa tgt gag gga aaa    att att acc ttc tca    acc ctg    75954
Ala Leu Gln    Lys Cys Glu Gly Lys    Ile Ile Thr Phe Ser    Thr Leu
           13745              13750              13755

cgt cat cga    gct tca ctg gtg gat    ata gcg ctg tcg tca    tat tac    75999
Arg His Arg    Ala Ser Leu Val Asp    Ile Ala Leu Ser Ser    Tyr Tyr
           13760              13765              13770
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att aac ggt   gct cca cca gac acg   ctc tcg ctg tta gag   gca tac   76044
Ile Asn Gly   Ala Pro Pro Asp Thr   Leu Ser Leu Leu Glu   Ala Tyr
        13775                 13780                 13785

cga atg cga   ttc gcg gca gtt ata   aca cgg gtc atc ccg   gga aag   76089
Arg Met Arg   Phe Ala Ala Val Ile   Thr Arg Val Ile Pro   Gly Lys
        13790                 13795                 13800

ttg ttg gcg   cat gcc att ggc gtg   ggt act cct aca ccc   ggg ttg   76134
Leu Leu Ala   His Ala Ile Gly Val   Gly Thr Pro Thr Pro   Gly Leu
        13805                 13810                 13815

ttt att caa   aat aca tcc ccc gtt   gat ctt tgt aat ggc   gat tac   76179
Phe Ile Gln   Asn Thr Ser Pro Val   Asp Leu Cys Asn Gly   Asp Tyr
        13820                 13825                 13830

atc tgc tta   ctt cct ccg gtt ttc   ggg tcc gca gac tca   att cgc   76224
Ile Cys Leu   Leu Pro Pro Val Phe   Gly Ser Ala Asp Ser   Ile Arg
        13835                 13840                 13845

ttg gac tct   gta gga ctg gaa att   gtt ttc cct tta acc   atc ccc   76269
Leu Asp Ser   Val Gly Leu Glu Ile   Val Phe Pro Leu Thr   Ile Pro
        13850                 13855                 13860

cag acc tta   atg cga gaa atc atc   gcc aaa gtg gtt gca   cgg gcc   76314
Gln Thr Leu   Met Arg Glu Ile Ile   Ala Lys Val Val Ala   Arg Ala
        13865                 13870                 13875

gtt gag cgc   acg gcc gcg ggt gct   caa att tta ccc cac   gaa gtt   76359
Val Glu Arg   Thr Ala Ala Gly Ala   Gln Ile Leu Pro His   Glu Val
        13880                 13885                 13890

cta cga ggc   gcg gat gtc att tgt   tac aat gga agg cgt   tat gaa   76404
Leu Arg Gly   Ala Asp Val Ile Cys   Tyr Asn Gly Arg Arg   Tyr Glu
        13895                 13900                 13905

ctc gaa aca   aat tta caa cat cgg   gac gga tcg gat gcg   gct att   76449
Leu Glu Thr   Asn Leu Gln His Arg   Asp Gly Ser Asp Ala   Ala Ile
        13910                 13915                 13920

cgc aca ttg   gtt tta aat cta atg   ttt tcc ata aac gag   gga tgt   76494
Arg Thr Leu   Val Leu Asn Leu Met   Phe Ser Ile Asn Glu   Gly Cys
        13925                 13930                 13935

ctg ctt tta   ttg gcg ctg att cca   act ttg tta gtc caa   gga gca   76539
Leu Leu Leu   Leu Ala Leu Ile Pro   Thr Leu Leu Val Gln   Gly Ala
        13940                 13945                 13950

cac gac ggt   tat gta aat tta ttg   ata caa acg gcc aat   tgc gtt   76584
His Asp Gly   Tyr Val Asn Leu Leu   Ile Gln Thr Ala Asn   Cys Val
        13955                 13960                 13965

aga gaa acc   ggc cag tta att aat   ata ccg cca atg ccg   cgg att   76629
Arg Glu Thr   Gly Gln Leu Ile Asn   Ile Pro Pro Met Pro   Arg Ile
        13970                 13975                 13980

caa gac ggc   cat cgc cga ttt ccc   ata tat gaa act att   tca tct   76674
Gln Asp Gly   His Arg Arg Phe Pro   Ile Tyr Glu Thr Ile   Ser Ser
        13985                 13990                 13995

tgg ata tca   aca tca tct aga ctg   ggg gat acc ttg gga   act cgc   76719
Trp Ile Ser   Thr Ser Ser Arg Leu   Gly Asp Thr Leu Gly   Thr Arg
        14000                 14005                 14010
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gca att tta   cgc gtc tgt gtg ttt   gat gga ccc tct act   gtt cat   76764
Ala Ile Leu   Arg Val Cys Val Phe   Asp Gly Pro Ser Thr   Val His
        14015               14020               14025

ccg gga gac   cgc acg gcc gtg att   caa gtg taa acaggtgtta            76807
Pro Gly Asp   Arg Thr Ala Val Ile   Gln Val
        14030               14035

ataaaaacac aaccagtcta gttacatttc acgcgtcttg tttttattta ataggcataa   76867

acacggaatc cggtatacat gaactgccaa tatacacgga cataattaat gcaaccatca   76927

gatcatctga cattgttccc gtggtacctt tacccgtgta agttttgtg tctagattac     76987

ccataccgcc tttaattacc tctgtcaggt tatccaactg tttacataga tactccacgg   77047

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cagggtctac gtaaacgtac aacactgacg ataatatagc acaattcgca acggttgacg   77587

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cacccccaga attctgttta cgcccaccta caatttcctg cacgaaggag tcggccataa   77707

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cataacacga acaagctgtg acatcgctat gtgctaaaac acgcggcatg tgatcgtcgc   77827

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ccaccaaagt ttaaatgtat ccttaaatac cacgtacgta aaaaatgttt gaatacgtac   78127

atatttcttt tttttttcca gtacaaccat atccggtgta ta atg gaa gcc   cat   78181
                                              Met Glu Ala   His
                                                        14040

ttg gca aat gaa   acc aaa cat gca ctt   tgg cat aat gat cac   aca   78226
Leu Ala Asn Glu   Thr Lys His Ala Leu   Trp His Asn Asp His   Thr
            14045               14050                   14055

aaa gga tta cta   cac gtt gtg ata cct   aac gcg ggg ctt att   gcg   78271
Lys Gly Leu Leu   His Val Val Ile Pro   Asn Ala Gly Leu Ile   Ala
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                 14060                      14065                      14070
gcc gga ata gat    ccc gca tta ctg att    tta aag aaa ccc gga    caa   78316
Ala Gly Ile Asp    Pro Ala Leu Leu Ile    Leu Lys Lys Pro Gly    Gln
                 14075                      14080                      14085

cgc ttc aag gtt    gaa gta caa aca aga    tat cat gct aca ggt    caa   78361
Arg Phe Lys Val    Glu Val Gln Thr Arg    Tyr His Ala Thr Gly    Gln
                 14090                      14095                      14100

tgc gaa ccg tgg    tgt caa gtt ttc gcc    gcg tac att ccc gat    aac   78406
Cys Glu Pro Trp    Cys Gln Val Phe Ala    Ala Tyr Ile Pro Asp    Asn
                 14105                      14110                      14115

gcc tta aca aat    ctc tta ata cca aaa    acg gaa cca ttt gtt    tca   78451
Ala Leu Thr Asn    Leu Leu Ile Pro Lys    Thr Glu Pro Phe Val    Ser
                 14120                      14125                      14130

cac gtt ttt tcg    gcc acg cat aat tca    ggg gga ttg att tta    tca   78496
His Val Phe Ser    Ala Thr His Asn Ser    Gly Gly Leu Ile Leu    Ser
                 14135                      14140                      14145

ttg cct gtt tat    ctt agc ccc ggt tta    ttc ttt gat gca ttt    aac   78541
Leu Pro Val Tyr    Leu Ser Pro Gly Leu    Phe Phe Asp Ala Phe    Asn
                 14150                      14155                      14160

gtt gta gcg ata    cga ata aat act gga    aac cgc aag cac cgt    gat   78586
Val Val Ala Ile    Arg Ile Asn Thr Gly    Asn Arg Lys His Arg    Asp
                 14165                      14170                      14175

att tgt att atg    tat gca gaa cta atc    cca aac gga acg cgt    tat   78631
Ile Cys Ile Met    Tyr Ala Glu Leu Ile    Pro Asn Gly Thr Arg    Tyr
                 14180                      14185                      14190

ttt gct gat gga    caa cgg gta ctt tta    tta tgc aaa cag ctg    att   78676
Phe Ala Asp Gly    Gln Arg Val Leu Leu    Leu Cys Lys Gln Leu    Ile
                 14195                      14200                      14205

gcg tat atc cga    tgc acc cct cgt ctt    gca tcg tct ata aaa    ata   78721
Ala Tyr Ile Arg    Cys Thr Pro Arg Leu    Ala Ser Ser Ile Lys    Ile
                 14210                      14215                      14220

tac gca gag cat    atg gtg gca gcc atg    ggt gaa tca cac acg    tca   78766
Tyr Ala Glu His    Met Val Ala Ala Met    Gly Glu Ser His Thr    Ser
                 14225                      14230                      14235

aat ggg gac aat    att gga ccc gtt tca    tcc ata atc gat ctt    gat   78811
Asn Gly Asp Asn    Ile Gly Pro Val Ser    Ser Ile Ile Asp Leu    Asp
                 14240                      14245                      14250

cga cag tta act    tct gga ggt att gat    gac tcc cct gct gaa    aca   78856
Arg Gln Leu Thr    Ser Gly Gly Ile Asp    Asp Ser Pro Ala Glu    Thr
                 14255                      14260                      14265

cgc ata cag gaa    aat aat cgg gac gtc    ctt gag cta ata aaa    cgg   78901
Arg Ile Gln Glu    Asn Asn Arg Asp Val    Leu Glu Leu Ile Lys    Arg
                 14270                      14275                      14280

gcc gta aac att    gtt aac tcc agg cac    ccc gtc cga cct tct    agt   78946
Ala Val Asn Ile    Val Asn Ser Arg His    Pro Val Arg Pro Ser    Ser
                 14285                      14290                      14295

tcc cgc gtt gca    tct ggg ttg ctt caa    agt gca aag ggc cac    gga   78991
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Ser Arg Val Ala   Ser Gly Leu Leu Gln   Ser Ala Lys Gly His   Gly
        14300               14305               14310

gcg caa act tcc   aac aca gat ccg atc   aat aac ggt tcc ttt   gat   79036
Ala Gln Thr Ser   Asn Thr Asp Pro Ile   Asn Asn Gly Ser Phe   Asp
        14315               14320               14325

ggc gtc ctt gag   ccg cct gga caa ggg   cga ttt acg gga aag   aaa   79081
Gly Val Leu Glu   Pro Pro Gly Gln Gly   Arg Phe Thr Gly Lys   Lys
        14330               14335               14340

aac aat tcg tcc   gcc agc atc cca cct   tta caa gac gtt cta   ttg   79126
Asn Asn Ser Ser   Ala Ser Ile Pro Pro   Leu Gln Asp Val Leu   Leu
        14345               14350               14355

ttt acc cca gct   tcg aca gaa ccc caa   agt ctt atg gaa tgg   ttc   79171
Phe Thr Pro Ala   Ser Thr Glu Pro Gln   Ser Leu Met Glu Trp   Phe
        14360               14365               14370

gac atc tgt tat   gcc caa tta gtt agc   ggg gac act cca gca   gat   79216
Asp Ile Cys Tyr   Ala Gln Leu Val Ser   Gly Asp Thr Pro Ala   Asp
        14375               14380               14385

ttc tgg aaa cgg   cgt ccc cta tca att   gta ccg cga cat tac   gca   79261
Phe Trp Lys Arg   Arg Pro Leu Ser Ile   Val Pro Arg His Tyr   Ala
        14390               14395               14400

gaa tcc ccc agt   ccg ttg att gta gta   tct tac aac gga tcc   tct   79306
Glu Ser Pro Ser   Pro Leu Ile Val Val   Ser Tyr Asn Gly Ser   Ser
        14405               14410               14415

gcc tgg gga gga   cgt att acc gga agt   cca att tta tat cac   tct   79351
Ala Trp Gly Gly   Arg Ile Thr Gly Ser   Pro Ile Leu Tyr His   Ser
        14420               14425               14430

gca cag gct att   att gat gct gcg tgt   ata aat gcc cgg gtt   gac   79396
Ala Gln Ala Ile   Ile Asp Ala Ala Cys   Ile Asn Ala Arg Val   Asp
        14435               14440               14445

aat ccc caa agc   cta cat gtg aca gct   cgc caa gag cta gtc   gcg   79441
Asn Pro Gln Ser   Leu His Val Thr Ala   Arg Gln Glu Leu Val   Ala
        14450               14455               14460

cgt tta ccg ttt   ttg gct aac gtc cta   aat aat caa acc ccc   tta   79486
Arg Leu Pro Phe   Leu Ala Asn Val Leu   Asn Asn Gln Thr Pro   Leu
        14465               14470               14475

ccc gcc ttt aaa   cca ggc gcc gaa atg   ttt tta aac cag gta   ttt   79531
Pro Ala Phe Lys   Pro Gly Ala Glu Met   Phe Leu Asn Gln Val   Phe
        14480               14485               14490

aaa caa gcg tgt   gtg aca tcg cta acc   caa ggt ctt ata acg   gag   79576
Lys Gln Ala Cys   Val Thr Ser Leu Thr   Gln Gly Leu Ile Thr   Glu
        14495               14500               14505

tta caa acg aac   ccg act cta caa caa   ctc atg gaa tat gat   att   79621
Leu Gln Thr Asn   Pro Thr Leu Gln Gln   Leu Met Glu Tyr Asp   Ile
        14510               14515               14520

gca gat tct tcc   caa acg gtt att gat   gaa att gta gcc cgc   aca   79666
Ala Asp Ser Ser   Gln Thr Val Ile Asp   Glu Ile Val Ala Arg   Thr
        14525               14530               14535
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cca gac ctg att   cag act ata gtt tcg   gtg tta acg gaa atg   tca   79711
Pro Asp Leu Ile   Gln Thr Ile Val Ser   Val Leu Thr Glu Met   Ser
        14540               14545                 14550

atg gat gcg ttt   tat aac agc tcc ttg   atg tat gcg gtt ttg   gcg   79756
Met Asp Ala Phe   Tyr Asn Ser Ser Leu   Met Tyr Ala Val Leu   Ala
        14555               14560                 14565

tat ctg tca tct   gta tat aca cga cca   caa ggt ggg ggg tat   ata   79801
Tyr Leu Ser Ser   Val Tyr Thr Arg Pro   Gln Gly Gly Gly Tyr   Ile
        14570               14575                 14580

ccc tac ctt cac   gct tcc ttc cca tgc   tgg tta ggt aat cgt   tct   79846
Pro Tyr Leu His   Ala Ser Phe Pro Cys   Trp Leu Gly Asn Arg   Ser
        14585               14590                 14595

ata tat tta ttt   gac tat tat aat tca   gga ggg gaa ata ctt   aag   79891
Ile Tyr Leu Phe   Asp Tyr Tyr Asn Ser   Gly Gly Glu Ile Leu   Lys
        14600               14605                 14610

ctt tcc aag gtc   ccc gtt ccc gta gcc   tta gaa aag gtt ggt   att   79936
Leu Ser Lys Val   Pro Val Pro Val Ala   Leu Glu Lys Val Gly   Ile
        14615               14620                 14625

ggt aat tcc aca   caa ctg agg ggt aaa   ttt ata cgc agc gcg   gat   79981
Gly Asn Ser Thr   Gln Leu Arg Gly Lys   Phe Ile Arg Ser Ala   Asp
        14630               14635                 14640

att gtt gat att   gga att tgt tct aag   tat tta ccc ggt caa   tgt   80026
Ile Val Asp Ile   Gly Ile Cys Ser Lys   Tyr Leu Pro Gly Gln   Cys
        14645               14650                 14655

tac gcg tac att   tgt cta gga ttt aac   cag caa tta caa tcc   att   80071
Tyr Ala Tyr Ile   Cys Leu Gly Phe Asn   Gln Gln Leu Gln Ser   Ile
        14660               14665                 14670

tta gtt tta ccg   ggg gga ttt gcg gca   tgt ttt tgt att acc   gat   80116
Leu Val Leu Pro   Gly Gly Phe Ala Ala   Cys Phe Cys Ile Thr   Asp
        14675               14680                 14685

acc cta cag gca   gca cta cct gca tcg   tta atc gga cct att   cta   80161
Thr Leu Gln Ala   Ala Leu Pro Ala Ser   Leu Ile Gly Pro Ile   Leu
        14690               14695                 14700

gac aga ttc tgc   ttc tct att ccc aac   ccc cat aaa taa         80200
Asp Arg Phe Cys   Phe Ser Ile Pro Asn   Pro His Lys
        14705               14710

attagtgtca ctataaaaac ataacaccag aatctcttca tatgtaattt tacgtcattt   80260

ctcccgtttc caccccctct taaaatataa aataaccggg tggtggcat taaacccaca   80320

agtacccggg cggcaatccg ctagactgtt tttctgctc atg gaa   tta caa cgc   80374
                                           Met Glu   Leu Gln Arg
                                                14715

ata ttt   ccg ctg tac acc gct   acg ggt gca gcg cgc   aaa tta acc   80419
Ile Phe   Pro Leu Tyr Thr Ala   Thr Gly Ala Ala Arg   Lys Leu Thr
     14720               14725                 14730

ccc gag   gca gtt cag aga ctc   tgc gat gca tta acg   ctg gat atg   80464
Pro Glu   Ala Val Gln Arg Leu   Cys Asp Ala Leu Thr   Leu Asp Met
     14735               14740                 14745
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gga tta  tgg aag tcc atc ctg  acc gat ccc cgg gtg  aaa ata atg  80509
Gly Leu  Trp Lys Ser Ile Leu  Thr Asp Pro Arg Val  Lys Ile Met
    14750            14755             14760

cga tca  act gct ttt ata act  tta agg atc gct ccg  ttt atc ccc  80554
Arg Ser  Thr Ala Phe Ile Thr  Leu Arg Ile Ala Pro  Phe Ile Pro
    14765            14770             14775

ctt caa  acg gat act act aat  att gcc gtt gtt gta  gcc aca att  80599
Leu Gln  Thr Asp Thr Thr Asn  Ile Ala Val Val Val  Ala Thr Ile
    14780            14785             14790

tac atc  acg cgc cca cgt cag  atg aac tta cct ccg  aag act ttt  80644
Tyr Ile  Thr Arg Pro Arg Gln  Met Asn Leu Pro Pro  Lys Thr Phe
    14795            14800             14805

cat gta  att gta aat ttt aat  tac gag gtc tcg tac  gca atg acg  80689
His Val  Ile Val Asn Phe Asn  Tyr Glu Val Ser Tyr  Ala Met Thr
    14810            14815             14820

gcg act  tta aga att tat ccg  gtt gaa aac ata gac  cat gtt ttt  80734
Ala Thr  Leu Arg Ile Tyr Pro  Val Glu Asn Ile Asp  His Val Phe
    14825            14830             14835

gga gca  acg ttt aag aac ccg  atc gcg tac ccc ctt  cca aca tct  80779
Gly Ala  Thr Phe Lys Asn Pro  Ile Ala Tyr Pro Leu  Pro Thr Ser
    14840            14845             14850

att ccg  gat cct cga gca gat  ccc acc ccc gca gat  ctt aca cca  80824
Ile Pro  Asp Pro Arg Ala Asp  Pro Thr Pro Ala Asp  Leu Thr Pro
    14855            14860             14865

acg cca  aac tta agc aac tac  tta caa ccc ccg cgg  ctt ccg aaa  80869
Thr Pro  Asn Leu Ser Asn Tyr  Leu Gln Pro Pro Arg  Leu Pro Lys
    14870            14875             14880

aat cca  tac gca tgt aaa gtt  att tct ccg gga gtg  tgg tgg tca  80914
Asn Pro  Tyr Ala Cys Lys Val  Ile Ser Pro Gly Val  Trp Trp Ser
    14885            14890             14895

gac gaa  cga agg cgt tta tat  gta ctg gct atg gaa  cct aat tta  80959
Asp Glu  Arg Arg Arg Leu Tyr  Val Leu Ala Met Glu  Pro Asn Leu
    14900            14905             14910

ata ggg  cta tgt ccc gcc gga  tgg cat gct cgg ata  ctt ggc tct  81004
Ile Gly  Leu Cys Pro Ala Gly  Trp His Ala Arg Ile  Leu Gly Ser
    14915            14920             14925

gta tta  aat cga ctc ctc agc  cat gcg gac gga tgt  gat gaa tgt  81049
Val Leu  Asn Arg Leu Leu Ser  His Ala Asp Gly Cys  Asp Glu Cys
    14930            14935             14940

aat cat  aga gtt cac gtg ggg  gca ctg tat gcg tta  ccc cat gtc  81094
Asn His  Arg Val His Val Gly  Ala Leu Tyr Ala Leu  Pro His Val
    14945            14950             14955

aca aat  cat gcg gaa ggt tgt  gtg tgt tgg gct ccg  tgt atg tgg  81139
Thr Asn  His Ala Glu Gly Cys  Val Cys Trp Ala Pro  Cys Met Trp
    14960            14965             14970

aga aag  gcc ggt cag cgg gaa  tta aaa gtg gag gta  gac att ggc  81184
Arg Lys  Ala Gly Gln Arg Glu  Leu Lys Val Glu Val  Asp Ile Gly
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        14975                    14980                    14985

gcc acg  cag gtt ctt ttt gta  gat gtc acc acc tgc  att cga att  81229
Ala Thr  Gln Val Leu Phe Val  Asp Val Thr Thr Cys  Ile Arg Ile
        14990                    14995                    15000

acg agt  act aaa aat cct cgc  att acc gca aat ctt  ggc gac gtt  81274
Thr Ser  Thr Lys Asn Pro Arg  Ile Thr Ala Asn Leu  Gly Asp Val
        15005                    15010                    15015

ata gcg  gga acc aac gcc agt  ggt ctc tct gta cca  gta aat tca  81319
Ile Ala  Gly Thr Asn Ala Ser  Gly Leu Ser Val Pro  Val Asn Ser
        15020                    15025                    15030

tct ggg  tgg cag ctt tat atg  ttt gga gaa aca tta  agc cgg gct  81364
Ser Gly  Trp Gln Leu Tyr Met  Phe Gly Glu Thr Leu  Ser Arg Ala
        15035                    15040                    15045

att att  aac ggc tgt ggt ctg  ctt cag cga att tgc  ttc ccc gag  81409
Ile Ile  Asn Gly Cys Gly Leu  Leu Gln Arg Ile Cys  Phe Pro Glu
        15050                    15055                    15060

aca caa  aga tta tcg ggt gaa  ccg gaa cct aca acc  acc tag       81451
Thr Gln  Arg Leu Ser Gly Glu  Pro Glu Pro Thr Thr  Thr
        15065                    15070                    15075

tataccttaa ctcaaccgcc gttgtggaaa ggtatatgtc aacatttaca gtaatatatt  81511

aaaggttaaa tttataaaac actcacgttt gtgttgtgac ttgacgcgaa caccgctgtg  81571

ctgtaagacc cgtcggtaaa tgaaaacgta atagattcgc cttttacatg atccacgtaa  81631

tttgccccaa accactgttc caggcgagac ttgataccct caaacacggg ttccgttgct  81691

ttgcgtatat gagccgtata acccacttta attcctctaa acgtggccat tactaaagct  81751

attaatggta caagaaacca tgttttccca tgtctacgtg gtaccaaaaa cacagttgat  81811

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agaaagcagt caactctgtc ggcatgatcg cccaatagca ccgatgaaat aaaatgcgtg  81931

gtgtgcatga ggatcatttt ttgaaacagt ccaacgtcc ccttatatct gccatagatt  81991

ggaacgtcaa cctttgcgcg tttgccatga cttccacact cttcaatact ctcaaaagat  82051

gtttccacaa ggtacgaaaa ccgttgtgta aaggtagaca actgacagaa actatccgac  82111

agagaaaacg cgcgaaatgt gttcataaca ccgctatacg catttcgatg aggtgctgct  82171

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acgtttgcat ttaccgaata tcgccatggt ttcaaaacta cattgggggt acagttgtac  82291

cctgttgacg atagaaacgc gccaaacatt gcccgtcgag cagtagccga gaacagtgga  82351

atatattcac aacagttgtg aagcgttcca attccgggaa taacggcctg atgacgtcgg  82411

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cgcgtggaac acggggtagg ggactccaac gtcccaaagc gttcatccct acgacgcttt  82531

agacgttcaa aatatcttac agattcttca ccaagcgtac gaccaaacat tatcaatgac  82591
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atttaacatc aattcacgga atccgcctca tctcttgtaa gcagtaaaac aggaagccgc   82651

gtcatcttac gtactcgtta cgtatatatc ataaacattt tcagggccgc attcattcac   82711

tttggtc atg tca ggc cac   act cca acc tac gct   tct cat agg cgt     82757
        Met Ser Gly His   Thr Pro Thr Tyr Ala   Ser His Arg Arg
                15080                   15085

aac   cgt gtc aaa cta gtt   gag gcg cat aac cgc   gcg ggg tta ttt   82802
Asn   Arg Val Lys Leu Val   Glu Ala His Asn Arg   Ala Gly Leu Phe
15090                 15095                 15100

aaa   gaa cgg acc ctc gat   cta atc cgt ggg ggt   gcg agt gta caa   82847
Lys   Glu Arg Thr Leu Asp   Leu Ile Arg Gly Gly   Ala Ser Val Gln
15105                 15110                 15115

gat   cca gca ttt gtg tat   gcc ttt act gct gca   aaa gag gcc tgc   82892
Asp   Pro Ala Phe Val Tyr   Ala Phe Thr Ala Ala   Lys Glu Ala Cys
15120                 15125                 15130

gcc   gat tta aat aac cag   ctc cgc tct gca gct   cgc ata gct tca   82937
Ala   Asp Leu Asn Asn Gln   Leu Arg Ser Ala Ala   Arg Ile Ala Ser
15135                 15140                 15145

gtt   gaa cag aag att cgt   gat ata caa tcc aag   gtt gag gaa caa   82982
Val   Glu Gln Lys Ile Arg   Asp Ile Gln Ser Lys   Val Glu Glu Gln
15150                 15155                 15160

aca   agt att caa cag att   tta aat aca aac aga   cgc tat ata gca   83027
Thr   Ser Ile Gln Gln Ile   Leu Asn Thr Asn Arg   Arg Tyr Ile Ala
15165                 15170                 15175

ccc   gat ttt att cgc ggt   ttg gat aaa aca gaa   gac gat aat acc   83072
Pro   Asp Phe Ile Arg Gly   Leu Asp Lys Thr Glu   Asp Asp Asn Thr
15180                 15185                 15190

gat   aat ata gac aga ctg   gaa gac gcg gta gga   ccg aac atc gaa   83117
Asp   Asn Ile Asp Arg Leu   Glu Asp Ala Val Gly   Pro Asn Ile Glu
15195                 15200                 15205

cac   gaa aat cat act tgg   ttt gga gaa gac gac   gaa gcg tta ctt   83162
His   Glu Asn His Thr Trp   Phe Gly Glu Asp Asp   Glu Ala Leu Leu
15210                 15215                 15220

aca   caa tgg atg ctg acg   aca cac ccc cca acc   tcc aaa tat ctc   83207
Thr   Gln Trp Met Leu Thr   Thr His Pro Pro Thr   Ser Lys Tyr Leu
15225                 15230                 15235

caa   ctg cag gac ctt tgc   gtt ccc acc aca ata   ccg acg gac atg   83252
Gln   Leu Gln Asp Leu Cys   Val Pro Thr Thr Ile   Pro Thr Asp Met
15240                 15245                 15250

aac   caa atg caa ccg cag   ccg atc agc aag aac   gag aat cca cca   83297
Asn   Gln Met Gln Pro Gln   Pro Ile Ser Lys Asn   Glu Asn Pro Pro
15255                 15260                 15265

acc   cca cac acg gat gtg   taa atcatccatg ggccaatccg tcaactgcaa   83348
Thr   Pro His Thr Asp Val
15270                 15275

catgcatgga atcaccagaa cgatcacaac agacaagctt atttttatta aagcacggct   83408
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taacgagaga tccaatacat caacgcgaaa gggtggacgt ttttccacaa tttaacaaac   83468

ccccatgggt ttttagaatt tccaaattat cccgtttaat tgtacccatc ttcacgctca   83528

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gaacgtatgg gcgtgttcat atatacccat cgtcaaaaat agctgtaaaa accatggaca   83648

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gcaatatttt tcttaacgtc gacaactttg cctcgttgga aataaccaca gcagtaatcg   84008

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atg gca cga tcg gga    ttg gat agg atc gac    ata agc ccc cag cca   84711
Met Ala Arg Ser Gly    Leu Asp Arg Ile Asp    Ile Ser Pro Gln Pro
            15280                  15285                    15290

gcc aaa aaa att gcc    cgt gtg gga ggt cta    cag cac cct ttt gta   84756
Ala Lys Lys Ile Ala    Arg Val Gly Gly Leu    Gln His Pro Phe Val
            15295                  15300                    15305

aaa acg gat att aac    acg att aac gtt gaa    cac cat ttt ata gac   84801
Lys Thr Asp Ile Asn    Thr Ile Asn Val Glu    His His Phe Ile Asp
            15310                  15315                    15320

acg cta cag aag aca    tca ccg aac atg gac    tgt cgc ggg atg aca   84846
Thr Leu Gln Lys Thr    Ser Pro Asn Met Asp    Cys Arg Gly Met Thr
            15325                  15330                    15335

gcg ggt att ttt att    cgt tta tcc cac atg    tat aaa att cta aca   84891
Ala Gly Ile Phe Ile    Arg Leu Ser His Met    Tyr Lys Ile Leu Thr
            15340                  15345                    15350

act ctg gag tct cca    aat gat gta acc tac    aca aca ccc ggt tct   84936
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Thr Leu Glu Ser Pro   Asn Asp Val Thr Tyr   Thr Thr Pro Gly Ser
             15355                 15360                 15365

acc aac gca ctg ttc   ttt aag acg tcc aca   cag cct cag gag ccg   84981
Thr Asn Ala Leu Phe   Phe Lys Thr Ser Thr   Gln Pro Gln Glu Pro
             15370                 15375                 15380

cgt ccg gaa gag tta   gca tcc aaa tta acc   caa gac gac att aaa   85026
Arg Pro Glu Glu Leu   Ala Ser Lys Leu Thr   Gln Asp Asp Ile Lys
             15385                 15390                 15395

cgt att cta tta aca   ata gaa tcg gag act   cgt ggt cag ggc gac   85071
Arg Ile Leu Leu Thr   Ile Glu Ser Glu Thr   Arg Gly Gln Gly Asp
             15400                 15405                 15410

aat gcc att tgg aca   cta ctc aga cga aat   tta atc acc gca tca   85116
Asn Ala Ile Trp Thr   Leu Leu Arg Arg Asn   Leu Ile Thr Ala Ser
             15415                 15420                 15425

act ctt aaa tgg agt   gta tct gga ccc gtc   att cca cct cag tgg   85161
Thr Leu Lys Trp Ser   Val Ser Gly Pro Val   Ile Pro Pro Gln Trp
             15430                 15435                 15440

ttt tac cac cat aac   act aca gac aca tac   ggt gat gcg gcg gca   85206
Phe Tyr His His Asn   Thr Thr Asp Thr Tyr   Gly Asp Ala Ala Ala
             15445                 15450                 15455

atg gcg ttt gga aaa   acc aac gaa ccg gcg   gca cga gcg ata gtt   85251
Met Ala Phe Gly Lys   Thr Asn Glu Pro Ala   Ala Arg Ala Ile Val
             15460                 15465                 15470

gaa gca ttg ttt ata   gat ccg gct gat atc   cgt act cct gat cat   85296
Glu Ala Leu Phe Ile   Asp Pro Ala Asp Ile   Arg Thr Pro Asp His
             15475                 15480                 15485

tta acg cca gaa gct   aca act aag ttt ttt   aat ttt gac atg ctc   85341
Leu Thr Pro Glu Ala   Thr Thr Lys Phe Phe   Asn Phe Asp Met Leu
             15490                 15495                 15500

aat acc aaa tct cca   agt ctc ctt gtg ggt   aca cca aga atc gga   85386
Asn Thr Lys Ser Pro   Ser Leu Leu Val Gly   Thr Pro Arg Ile Gly
             15505                 15510                 15515

acg tat gaa tgt gga   ctt tta atc gac gtt   cga acg gga ctt ata   85431
Thr Tyr Glu Cys Gly   Leu Leu Ile Asp Val   Arg Thr Gly Leu Ile
             15520                 15525                 15530

ggc gcg tcg ttg gac   gtt ctt gta tgt gac   agg gac cct tta act   85476
Gly Ala Ser Leu Asp   Val Leu Val Cys Asp   Arg Asp Pro Leu Thr
             15535                 15540                 15545

ggc acc cta aat ccc   cac cct gca gaa acc   gac att tca ttt ttt   85521
Gly Thr Leu Asn Pro   His Pro Ala Glu Thr   Asp Ile Ser Phe Phe
             15550                 15555                 15560

gaa att aaa tgt cgt   gct aaa tac ctc ttt   gat cca gat gac aaa   85566
Glu Ile Lys Cys Arg   Ala Lys Tyr Leu Phe   Asp Pro Asp Asp Lys
             15565                 15570                 15575

aat aac ccg ctc ggt   cgg acg tac acc acg   tta ata aat aga cct   85611
Asn Asn Pro Leu Gly   Arg Thr Tyr Thr Thr   Leu Ile Asn Arg Pro
             15580                 15585                 15590
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aca atg gca aat cta   cgg gac ttt tta tat   act ata aaa aac cca      85656
Thr Met Ala Asn Leu   Arg Asp Phe Leu Tyr   Thr Ile Lys Asn Pro
            15595                15600                      15605

tgt gta agc ttc ttt   gga ccc tca gca aac   cca agt aca cgc gag      85701
Cys Val Ser Phe Phe   Gly Pro Ser Ala Asn   Pro Ser Thr Arg Glu
            15610                15615                      15620

gcc tta ata acg gat   cac gtt gaa tgg aaa   cgt tta gga ttt aaa      85746
Ala Leu Ile Thr Asp   His Val Glu Trp Lys   Arg Leu Gly Phe Lys
            15625                15630                      15635

ggt ggg agg gcc ctt   aca gaa ctc gac gcc   cat cat ttg ggc ctc      85791
Gly Gly Arg Ala Leu   Thr Glu Leu Asp Ala   His His Leu Gly Leu
            15640                15645                      15650

aat cgg aca atc tca   tcc cga gtg tgg gta   ttt aat gat ccg gac      85836
Asn Arg Thr Ile Ser   Ser Arg Val Trp Val   Phe Asn Asp Pro Asp
            15655                15660                      15665

ata caa aag ggg aca   att aca acc att gca   tgg gcc act gga gat      85881
Ile Gln Lys Gly Thr   Ile Thr Thr Ile Ala   Trp Ala Thr Gly Asp
            15670                15675                      15680

acg gct ctt caa att   cct gta ttt gcc aat   ccg cgg cac gct aac      85926
Thr Ala Leu Gln Ile   Pro Val Phe Ala Asn   Pro Arg His Ala Asn
            15685                15690                      15695

ttt aaa caa att gcc   gta caa acc tat gta   tta tcc ggt tac ttt      85971
Phe Lys Gln Ile Ala   Val Gln Thr Tyr Val   Leu Ser Gly Tyr Phe
            15700                15705                      15710

cca gcg cta aaa cta   cgg ccc ttc ctt gtc   acc ttt ata gga cgt      86016
Pro Ala Leu Lys Leu   Arg Pro Phe Leu Val   Thr Phe Ile Gly Arg
            15715                15720                      15725

gtg cgc cga cca cac   gag gtg gga gtc cca   ttg cgc gtc gat aca      86061
Val Arg Arg Pro His   Glu Val Gly Val Pro   Leu Arg Val Asp Thr
            15730                15735                      15740

caa gcg gct gcc att   tac gaa tat aac tgg   ccg act atc cca ccc      86106
Gln Ala Ala Ala Ile   Tyr Glu Tyr Asn Trp   Pro Thr Ile Pro Pro
            15745                15750                      15755

cac tgt gcg gtt ccg   gtt ata gcc gtt cta   acg cct atc gaa gtt      86151
His Cys Ala Val Pro   Val Ile Ala Val Leu   Thr Pro Ile Glu Val
            15760                15765                      15770

gat gtg cct aga gtg   aca caa ata ctt aaa   gac aca gga aac aac      86196
Asp Val Pro Arg Val   Thr Gln Ile Leu Lys   Asp Thr Gly Asn Asn
            15775                15780                      15785

gcg att aca tca gca   ttg cgg tca ttg cga   tgg gac aat ctt cat      86241
Ala Ile Thr Ser Ala   Leu Arg Ser Leu Arg   Trp Asp Asn Leu His
            15790                15795                      15800

cca gcg gtc gag gag   gaa tct gtg gat tgt   gca aac ggt aca acg      86286
Pro Ala Val Glu Glu   Glu Ser Val Asp Cys   Ala Asn Gly Thr Thr
            15805                15810                      15815

agc ttg tta cgt gca   acg gag aaa ccg ttg   ctt tga actcagagtt      86332
Ser Leu Leu Arg Ala   Thr Glu Lys Pro Leu   Leu
            15820                15825
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ctttgaagac tttgactttg atgagaatgt aacagaggac gccgataaat ccacacaacg   86392

ccgcccacga gtgatcgatg taacaccaaa acgaaaacct tcgggaaaga gctcccattc   86452

caaatgcgca aaatgttaaa ccctgataaa ccctgataaa cgttctaata aaaacatcaa   86512

atcatggttg gttactgtga atgtttgttt tattgcttgg gggtttacaa gtacaaccca   86572

cgctactccc acccactgtt tgatcgctcg tataacagct catcctcgcg gtccgtttca   86632

tatgttgagt cattttcata gacgtagccg tagccttgtg atgggtaatt tgtgcggcga   86692

gaatttctat gtgcaggttt tacttttcgt atgtatcccc gtacccgctc gggtactctt   86752

cttacggcac cgtagaaccg actgcgtttc tgtcgatgat acacatatgc acgcatcaat   86812

ctgagaagca acatgacaac ggaaaacacg gccaggcaag ccaaggttcc ccgagttgtg   86872

ggaattaacc gtggagattg aaccgatata gggtcatata atcggtccat atacgagtgc   86932

gcggcggttc ccaacgtagc acaggccacg agcgttccca gggacggtcc tattaacacg   86992

tgtatataat gcgccaaaat taattctgat actataagat atacaactga caatgtacta   87052

aatgtagaca tggccacgga caccgatgac cacagtcccg tatgtagatg attcgccacc   87112

acaagttcca gcattaatga tacaaatagg atacatatcg ccatcaacgc agccatcaaa   87172

ttcacgaaca ctgcgcgcgt aggccccgca aggcgatata aaaagacgct ctgctgtcgt   87232

aaatttgcga ccgctttat gttcgtttcg tccaattttc cgcgtccaca aaaatacgtt   87292

gtaaatatta cacttgtcgc aaaatgtcca agatataatg tagcagccac gccgatttgc   87352

ttgtaagcta ataataacac aacggcgttt aataaccaca atgacaaaag accccaaaaa   87412

agtgttgtgg gatctacaac taaccatgca acaccggagc tttgccggac acgttgattt   87472

ttcgtttctc ggtgtataat cgcggccgtg atcagtgtat ataccgccat ggccattgcc   87532

gttaaagccg tgtagtaagt aaatgccaca acgctatgtg gttccaaaaa caaaaccggg   87592

gcgctgtatc cacctctatt tccggaccat acccccccat ctagggtggc gttaaataac   87652

tcataatcaa ctacggcagc ataaaaacaa gggatcccgg tatattcaga agaggcggca   87712

attaacgtag ccaggagcat taccgcaccc aaagtgaaca tcatcacctg aattatccaa   87772

attcgccaat taagcgtatc catttgatga tctaacgctt ccacctcggg tgtcgtggtg   87832

tcgtacggcg agactttttc agaacgcggc cccttctttt gagttccc atg tct ccc     87889
                                                      Met Ser Pro
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aac     acc ggg gag agc aac     gcc gcc gtc tat gcg     tcc agt aca cag   87934
Asn     Thr Gly Glu Ser Asn     Ala Ala Val Tyr Ala     Ser Ser Thr Gln
15830                   15835                   15840

ctc     gcg cgg gcg tta tat     gga ggg gat ctg gtt     tcg tgg att aaa   87979
Leu     Ala Arg Ala Leu Tyr     Gly Gly Asp Leu Val     Ser Trp Ile Lys
15845                   15850                   15855
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cac  acc cac ccg gga att  agc ctg gaa ctg caa  ttg gat gtt cca  88024
His  Thr His Pro Gly Ile  Ser Leu Glu Leu Gln  Leu Asp Val Pro
15860              15865             15870

gta  aaa cta ata aaa cct  ggt atg tca caa act  cgc ccg gta acc  88069
Val  Lys Leu Ile Lys Pro  Gly Met Ser Gln Thr  Arg Pro Val Thr
15875              15880             15885

gtc  gta cgt gcc cct atg  ggc tct ggt aaa aca  aca gcc ttg ctt  88114
Val  Val Arg Ala Pro Met  Gly Ser Gly Lys Thr  Thr Ala Leu Leu
15890              15895             15900

gag  tgg ctt caa cac gcg  tta aag gca gat att  agc gta ctg gtt  88159
Glu  Trp Leu Gln His Ala  Leu Lys Ala Asp Ile  Ser Val Leu Val
15905              15910             15915

gtc  tca tgt cgc cgt agc  ttt acc cag acg ttg  att caa cgg ttt  88204
Val  Ser Cys Arg Arg Ser  Phe Thr Gln Thr Leu  Ile Gln Arg Phe
15920              15925             15930

aac  gat gca ggc ctc tcc  gga ttc gta aca tat  ttg aca tcc gag  88249
Asn  Asp Ala Gly Leu Ser  Gly Phe Val Thr Tyr  Leu Thr Ser Glu
15935              15940             15945

aca  tat att atg ggt ttt  aaa cgt ttg att gtg  caa ctt gaa agc  88294
Thr  Tyr Ile Met Gly Phe  Lys Arg Leu Ile Val  Gln Leu Glu Ser
15950              15955             15960

cta  cac cgc gta tcc agc  gaa gct atc gac agc  tac gac gta tta  88339
Leu  His Arg Val Ser Ser  Glu Ala Ile Asp Ser  Tyr Asp Val Leu
15965              15970             15975

ata  ctg gat gag gta atg  tca gtg att gga caa  tta tac tcc ccc  88384
Ile  Leu Asp Glu Val Met  Ser Val Ile Gly Gln  Leu Tyr Ser Pro
15980              15985             15990

aca  atg aga cgt ctt tcc  gcg gtt gat agc cta  tta tat cgt ctt  88429
Thr  Met Arg Arg Leu Ser  Ala Val Asp Ser Leu  Leu Tyr Arg Leu
15995              16000             16005

tta  aat cgc tgt tct caa  att atc gcg atg gat  gct aca gta aac  88474
Leu  Asn Arg Cys Ser Gln  Ile Ile Ala Met Asp  Ala Thr Val Asn
16010              16015             16020

tcg  cag ttt att gat tta  atc tcc gga ttg cgt  gga gat gaa aac  88519
Ser  Gln Phe Ile Asp Leu  Ile Ser Gly Leu Arg  Gly Asp Glu Asn
16025              16030             16035

ata  cac aca att gtg tgt  aca tac gcg gga gtt  ggg ttc tcc gga  88564
Ile  His Thr Ile Val Cys  Thr Tyr Ala Gly Val  Gly Phe Ser Gly
16040              16045             16050

aga  act tgc acg atc ctg  cgt gat atg ggc atc  gac acg ctt gtg  88609
Arg  Thr Cys Thr Ile Leu  Arg Asp Met Gly Ile  Asp Thr Leu Val
16055              16060             16065

cga  gtc att aaa cga tct  cct gaa cac gag gat  gta cgt acc ata  88654
Arg  Val Ile Lys Arg Ser  Pro Glu His Glu Asp  Val Arg Thr Ile
16070              16075             16080

cac  caa cta cgt gga aca  ttt ttt gac gaa cta  gca cta cga tta  88699
His  Gln Leu Arg Gly Thr  Phe Phe Asp Glu Leu  Ala Leu Arg Leu
16085              16090             16095
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caa    tgt ggg cat aac atc    tgt ata ttt tca tca    act tta tcg ttt    88744
Gln    Cys Gly His Asn Ile    Cys Ile Phe Ser Ser    Thr Leu Ser Phe
16100                  16105                  16110

tcg    gag cta gtt gct cag    ttt tgt gca ata ttt    aca gac tct att    88789
Ser    Glu Leu Val Ala Gln    Phe Cys Ala Ile Phe    Thr Asp Ser Ile
16115                  16120                  16125

ctt    att tta aac tca act    cgg ccc cta tgt aat    gta aac gaa tgg    88834
Leu    Ile Leu Asn Ser Thr    Arg Pro Leu Cys Asn    Val Asn Glu Trp
16130                  16135                  16140

aaa    cat ttt cgc gtg ttg    gtg tac act acc gtc    gtg acc gtt gga    88879
Lys    His Phe Arg Val Leu    Val Tyr Thr Thr Val    Val Thr Val Gly
16145                  16150                  16155

ttg    agt ttt gac atg gct    cat ttt cat agc atg    ttt gct tac ata    88924
Leu    Ser Phe Asp Met Ala    His Phe His Ser Met    Phe Ala Tyr Ile
16160                  16165                  16170

aag    cca atg tca tat ggg    ccg gat atg gta tcg    gtc tac cag tca    88969
Lys    Pro Met Ser Tyr Gly    Pro Asp Met Val Ser    Val Tyr Gln Ser
16175                  16180                  16185

tta    ggg cgt gta cgt tta    ttg cta ctt aat gaa    gtt ttg atg tac    89014
Leu    Gly Arg Val Arg Leu    Leu Leu Leu Asn Glu    Val Leu Met Tyr
16190                  16195                  16200

gtc    gat ggc tca agg acc    aga tgc gga ccc ctg    ttc tcg cca atg    89059
Val    Asp Gly Ser Arg Thr    Arg Cys Gly Pro Leu    Phe Ser Pro Met
16205                  16210                  16215

tta    cta aac ttt acc atc    gca aat aaa ttt caa    tgg ttt cct aca    89104
Leu    Leu Asn Phe Thr Ile    Ala Asn Lys Phe Gln    Trp Phe Pro Thr
16220                  16225                  16230

cac    acc caa ata act aac    aaa ctg tgc tgt gca    ttt agg caa cga    89149
His    Thr Gln Ile Thr Asn    Lys Leu Cys Cys Ala    Phe Arg Gln Arg
16235                  16240                  16245

tgt    gca aat gca ttt aca    cgc tcg aac acc cat    ctc ttc tca aga    89194
Cys    Ala Asn Ala Phe Thr    Arg Ser Asn Thr His    Leu Phe Ser Arg
16250                  16255                  16260

ttt    aaa tac aaa cac ctt    ttc gag aga tgc tct    ctt tgg agt tta    89239
Phe    Lys Tyr Lys His Leu    Phe Glu Arg Cys Ser    Leu Trp Ser Leu
16265                  16270                  16275

gcc    gat agc att aat atc    tta caa act ctt ttg    gcc tct aac caa    89284
Ala    Asp Ser Ile Asn Ile    Leu Gln Thr Leu Leu    Ala Ser Asn Gln
16280                  16285                  16290

att    ttg gtt gta ttg gat    ggc atg ggt cca ata    acg gac gtt tcc    89329
Ile    Leu Val Val Leu Asp    Gly Met Gly Pro Ile    Thr Asp Val Ser
16295                  16300                  16305

cca    gtt caa ttt tgt gca    ttt ata cac gat ctc    aga cat agc gct    89374
Pro    Val Gln Phe Cys Ala    Phe Ile His Asp Leu    Arg His Ser Ala
16310                  16315                  16320

aac    gcc gta gct tcc tgt    atg cgt tct ctt aga    cag gac aat gac    89419
Asn    Ala Val Ala Ser Cys    Met Arg Ser Leu Arg    Gln Asp Asn Asp
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16325					16330					16335			

agc	tgc	ttg	acc	gat	ttt	ggc	cct	tcc	gga	ttt	atg	gcc	gat	aac	89464
Ser	Cys	Leu	Thr	Asp	Phe	Gly	Pro	Ser	Gly	Phe	Met	Ala	Asp	Asn	
16340					16345					16350					

att	acc	gcg	ttt	atg	gaa	aag	tat	ctt	atg	gag	tca	att	aat	acc	89509
Ile	Thr	Ala	Phe	Met	Glu	Lys	Tyr	Leu	Met	Glu	Ser	Ile	Asn	Thr	
16355					16360					16365					

gaa	gaa	caa	att	aaa	gta	ttt	aaa	gcc	ctt	gca	tgt	cca	ata	gaa	89554
Glu	Glu	Gln	Ile	Lys	Val	Phe	Lys	Ala	Leu	Ala	Cys	Pro	Ile	Glu	
16370					16375					16380					

cag	cct	aga	cta	gtc	aat	acg	gca	ata	ttg	ggg	gcg	tgt	ata	cga	89599
Gln	Pro	Arg	Leu	Val	Asn	Thr	Ala	Ile	Leu	Gly	Ala	Cys	Ile	Arg	
16385					16390					16395					

ata	cct	gaa	gcg	ttg	gaa	gca	ttt	gac	gta	ttt	caa	aaa	ata	tac	89644
Ile	Pro	Glu	Ala	Leu	Glu	Ala	Phe	Asp	Val	Phe	Gln	Lys	Ile	Tyr	
16400					16405					16410					

acg	cac	tac	gct	tcc	ggt	tgg	ttt	ccc	gtc	ctg	gac	aaa	acc	ggg	89689
Thr	His	Tyr	Ala	Ser	Gly	Trp	Phe	Pro	Val	Leu	Asp	Lys	Thr	Gly	
16415					16420					16425					

gaa	ttt	agc	atc	gcg	act	ata	act	acc	gcc	cca	aat	tta	acc	aca	89734
Glu	Phe	Ser	Ile	Ala	Thr	Ile	Thr	Thr	Ala	Pro	Asn	Leu	Thr	Thr	
16430					16435					16440					

cat	tgg	gag	ctg	ttt	cgc	cgt	tgt	gcc	tat	att	gca	aaa	aca	ctc	89779
His	Trp	Glu	Leu	Phe	Arg	Arg	Cys	Ala	Tyr	Ile	Ala	Lys	Thr	Leu	
16445					16450					16455					

aag	tgg	aat	ccg	tcc	acc	gaa	ggc	tgt	gta	aca	caa	gtt	ttg	gat	89824
Lys	Trp	Asn	Pro	Ser	Thr	Glu	Gly	Cys	Val	Thr	Gln	Val	Leu	Asp	
16460					16465					16470					

acg	gac	att	aat	aca	ctt	ttc	aat	caa	cac	ggg	gat	tcg	ctg	gct	89869
Thr	Asp	Ile	Asn	Thr	Leu	Phe	Asn	Gln	His	Gly	Asp	Ser	Leu	Ala	
16475					16480					16485					

caa	cta	ata	ttt	gag	gtt	atg	cgc	tgt	aac	gtt	act	gac	gct	aag	89914
Gln	Leu	Ile	Phe	Glu	Val	Met	Arg	Cys	Asn	Val	Thr	Asp	Ala	Lys	
16490					16495					16500					

att	ata	tta	aac	cgc	ccg	gtt	tgg	cga	aca	acc	gga	ttc	tta	gat	89959
Ile	Ile	Leu	Asn	Arg	Pro	Val	Trp	Arg	Thr	Thr	Gly	Phe	Leu	Asp	
16505					16510					16515					

gga	tgc	cat	aat	caa	tgc	ttc	cgt	cca	atc	cct	aca	aaa	cac	gaa	90004
Gly	Cys	His	Asn	Gln	Cys	Phe	Arg	Pro	Ile	Pro	Thr	Lys	His	Glu	
16520					16525					16530					

tat	aac	att	gct	cta	ttt	cgt	tta	att	tgg	gaa	caa	tta	ttt	ggc	90049
Tyr	Asn	Ile	Ala	Leu	Phe	Arg	Leu	Ile	Trp	Glu	Gln	Leu	Phe	Gly	
16535					16540					16545					

gcc	cgc	gta	act	aaa	agt	acc	cag	acc	ttt	ccg	gga	agt	act	cgt	90094
Ala	Arg	Val	Thr	Lys	Ser	Thr	Gln	Thr	Phe	Pro	Gly	Ser	Thr	Arg	
16550					16555					16560					

gtg	aaa	aac	cta	aaa	aaa	aaa	gat	cta	gaa	act	tta	ctt	gat	tca	90139

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Val   Lys Asn Leu Lys Lys   Lys Asp Leu Glu Thr   Leu Leu Asp Ser
16565                 16570                16575

att   aac gtg gat cgt tct   gca tgt cgt acc tac   cgc cag ttg tat   90184
Ile   Asn Val Asp Arg Ser   Ala Cys Arg Thr Tyr   Arg Gln Leu Tyr
16580                 16585                16590

aac   ctg ctt atg agc cag   cgc cat tcg ttc tct   caa cag cgt tac   90229
Asn   Leu Leu Met Ser Gln   Arg His Ser Phe Ser   Gln Gln Arg Tyr
16595                 16600                16605

aaa   att act gcc ccc gct   tgg gca cgc cac gtg   tat ttt caa gca   90274
Lys   Ile Thr Ala Pro Ala   Trp Ala Arg His Val   Tyr Phe Gln Ala
16610                 16615                16620

cat   caa atg cac ttg gcc   ccg cat gcc gaa gcc   atg cta caa tta   90319
His   Gln Met His Leu Ala   Pro His Ala Glu Ala   Met Leu Gln Leu
16625                 16630                16635

gcg   cta tcg gaa ctg tcc   ccg gga tcg tgg ccg   cgg ata aac ggg   90364
Ala   Leu Ser Glu Leu Ser   Pro Gly Ser Trp Pro   Arg Ile Asn Gly
16640                 16645                16650

gcg   gta aat ttt gaa agt   tta taa cccgttaata ccatatatgg         90408
Ala   Val Asn Phe Glu Ser   Leu
16655                 16660

acatccatag gggggttac ataaatacta agcctctgta caacacaaag ggcctctaac   90468

aatgcactga accacaacca agct atg gac gca acg   cag att acc ttg       90516
                         Met Asp Ala Thr   Gln Ile Thr Leu
                                 16665

gtt   aga gaa agc gga cac   att tgt gcc gca agc   ata tac aca tcc   90561
Val   Arg Glu Ser Gly His   Ile Cys Ala Ala Ser   Ile Tyr Thr Ser
16670                 16675                16680

tgg   aca cag tcc gga caa   tta aca cag aac ggt   ctt tcc gtg tta   90606
Trp   Thr Gln Ser Gly Gln   Leu Thr Gln Asn Gly   Leu Ser Val Leu
16685                 16690                16695

tac   tac tta tta tgc aaa   aac tca tgt ggg aaa   tac gtc cct aag   90651
Tyr   Tyr Leu Leu Cys Lys   Asn Ser Cys Gly Lys   Tyr Val Pro Lys
16700                 16705                16710

ttt   gcc gaa att acc gta   caa caa gag gat tta   tgt cgc tac tcc   90696
Phe   Ala Glu Ile Thr Val   Gln Gln Glu Asp Leu   Cys Arg Tyr Ser
16715                 16720                16725

agg   cat ggg ggg agt gtt   tct gcg gca acg ttt   gcg tct atc tgc   90741
Arg   His Gly Gly Ser Val   Ser Ala Ala Thr Phe   Ala Ser Ile Cys
16730                 16735                16740

agg   gcg gcg tcc tcg gct   gcg tta gac gcc tgg   ccc ctt gaa cca   90786
Arg   Ala Ala Ser Ser Ala   Ala Leu Asp Ala Trp   Pro Leu Glu Pro
16745                 16750                16755

ctg   ggt aac gca gac acc   tgg cgt tgt ctc cat   ggc act gcc ctg   90831
Leu   Gly Asn Ala Asp Thr   Trp Arg Cys Leu His   Gly Thr Ala Leu
16760                 16765                16770

gcc   act tta cgg cgc gta   tta ggg ttt aaa tcg   ttt tat tcg cca   90876
Ala   Thr Leu Arg Arg Val   Leu Gly Phe Lys Ser   Phe Tyr Ser Pro
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16775   16780   16785

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gta  aca ttc gag act gat   acg aat aca ggt ctt   ctg tta aaa aca   90921
Val  Thr Phe Glu Thr Asp   Thr Asn Thr Gly Leu   Leu Leu Lys Thr
16790                     16795                  16800

atc  ccc gat gaa cac gcg   ttg aat aat gac aac   acg cca tct acc   90966
Ile  Pro Asp Glu His Ala   Leu Asn Asn Asp Asn   Thr Pro Ser Thr
16805                     16810                  16815

gga  gta ttg agg gct aat   ttt ccc gtg gcc att   gat gtt tca gca   91011
Gly  Val Leu Arg Ala Asn   Phe Pro Val Ala Ile   Asp Val Ser Ala
16820                     16825                  16830

gtc  agc gca tgt aac gcc   cac acg caa ggt acg   tcg cta gcc tac   91056
Val  Ser Ala Cys Asn Ala   His Thr Gln Gly Thr   Ser Leu Ala Tyr
16835                     16840                  16845

gcc  cgc ctg acc gca ctt   aaa tct aac ggt gac   acc cag caa caa   91101
Ala  Arg Leu Thr Ala Leu   Lys Ser Asn Gly Asp   Thr Gln Gln Gln
16850                     16855                  16860

aca  cct tta gac gtg gag   gta att aca cca aag   gcc tac ata cgt   91146
Thr  Pro Leu Asp Val Glu   Val Ile Thr Pro Lys   Ala Tyr Ile Arg
16865                     16870                  16875

cgg  aaa tat aag tct acg   ttt tcc ccc cct ata   gag cgg gaa ggc   91191
Arg  Lys Tyr Lys Ser Thr   Phe Ser Pro Pro Ile   Glu Arg Glu Gly
16880                     16885                  16890

caa  acc tcc gat ttg ttt   aac ctt gaa gaa cgc   cgc ttg gtt ctt   91236
Gln  Thr Ser Asp Leu Phe   Asn Leu Glu Glu Arg   Arg Leu Val Leu
16895                     16900                  16905

agt  ggc aat cgc gca att   gtg gta agg gta ctc   tta ccg tgt tat   91281
Ser  Gly Asn Arg Ala Ile   Val Val Arg Val Leu   Leu Pro Cys Tyr
16910                     16915                  16920

ttt  gac tgt tta aca acg   gat tcc acc gtt aca   tct tcc ctt tca   91326
Phe  Asp Cys Leu Thr Thr   Asp Ser Thr Val Thr   Ser Ser Leu Ser
16925                     16930                  16935

ata  tta gca aca tat aga   ctg tgg tac gcg gcg   gcg ttt gga aaa   91371
Ile  Leu Ala Thr Tyr Arg   Leu Trp Tyr Ala Ala   Ala Phe Gly Lys
16940                     16945                  16950

ccc  ggg gtt gtc cgt cca   atc ttt gcg tat tta   ggc ccg gaa ctc   91416
Pro  Gly Val Val Arg Pro   Ile Phe Ala Tyr Leu   Gly Pro Glu Leu
16955                     16960                  16965

aat  ccg aag ggt gaa gac   aga gac tac ttt tgt   act gtc gga ttt   91461
Asn  Pro Lys Gly Glu Asp   Arg Asp Tyr Phe Cys   Thr Val Gly Phe
16970                     16975                  16980

ccc  gga tgg acc act ctt   cgg aca caa act cca   gcc gtc gaa tct   91506
Pro  Gly Trp Thr Thr Leu   Arg Thr Gln Thr Pro   Ala Val Glu Ser
16985                     16990                  16995

att  cgc acg gct acg gag   atg tac atg gaa acg   gat ggg ttg tgg   91551
Ile  Arg Thr Ala Thr Glu   Met Tyr Met Glu Thr   Asp Gly Leu Trp
17000                     17005                  17010

cca  gta acc ggt att cag   gcc ttt cat tat cta   gcc ccc tgg gga   91596
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Pro   Val Thr Gly Ile Gln   Ala Phe His Tyr Leu   Ala Pro Trp Gly
17015                 17020                 17025

cag   cat ccc ccc tta cct   ccg cgg gtg cag gat   ctt att ggg caa   91641
Gln   His Pro Pro Leu Pro   Pro Arg Val Gln Asp   Leu Ile Gly Gln
17030                 17035                 17040

atc   cct caa gat act gga   cat gca gat gca act   gtc aat tgg gac   91686
Ile   Pro Gln Asp Thr Gly   His Ala Asp Ala Thr   Val Asn Trp Asp
17045                 17050                 17055

gcg   ggc cgg ata tct acc   gtc ttc aaa cag cct   gta caa cta caa   91731
Ala   Gly Arg Ile Ser Thr   Val Phe Lys Gln Pro   Val Gln Leu Gln
17060                 17065                 17070

gat   cgt tgg atg gca aag   ttt gat ttc agc gcc   ttt ttt ccc acg   91776
Asp   Arg Trp Met Ala Lys   Phe Asp Phe Ser Ala   Phe Phe Pro Thr
17075                 17080                 17085

ata   tac tgc gct atg ttc   ccc atg cat ttt aga   tta ggc aaa atc   91821
Ile   Tyr Cys Ala Met Phe   Pro Met His Phe Arg   Leu Gly Lys Ile
17090                 17095                 17100

gtc   ctg gct aga atg cgt   cga gga atg ggg tgc   cta aaa ccc gcg   91866
Val   Leu Ala Arg Met Arg   Arg Gly Met Gly Cys   Leu Lys Pro Ala
17105                 17110                 17115

ttg   gtg tct ttt ttt ggg   ggg tta cgg cac ata   ctc ccg agt ata   91911
Leu   Val Ser Phe Phe Gly   Gly Leu Arg His Ile   Leu Pro Ser Ile
17120                 17125                 17130

tac   aaa gct att att ttt   ata gcc aat gaa att   agc ctt tgc gtc   91956
Tyr   Lys Ala Ile Ile Phe   Ile Ala Asn Glu Ile   Ser Leu Cys Val
17135                 17140                 17145

gaa   caa acg gcc ttg gaa   cag ggc ttt gct ata   tgt act tat ata   92001
Glu   Gln Thr Ala Leu Glu   Gln Gly Phe Ala Ile   Cys Thr Tyr Ile
17150                 17155                 17160

aaa   gat gga ttt tgg gga   atc ttc acc gat tta   cat acg cgc aat   92046
Lys   Asp Gly Phe Trp Gly   Ile Phe Thr Asp Leu   His Thr Arg Asn
17165                 17170                 17175

gta   tgt tca gat cag gca   cgt tgt tcg gcc tta   aat tta gcg gcc   92091
Val   Cys Ser Asp Gln Ala   Arg Cys Ser Ala Leu   Asn Leu Ala Ala
17180                 17185                 17190

acc   tgc gaa aga gca gtc   acg ggc tta tta cga   att caa cta ggt   92136
Thr   Cys Glu Arg Ala Val   Thr Gly Leu Leu Arg   Ile Gln Leu Gly
17195                 17200                 17205

ctt   aac ttt aca ccc gcc   atg gaa ccg gta ctc   cgg gtc gag ggt   92181
Leu   Asn Phe Thr Pro Ala   Met Glu Pro Val Leu   Arg Val Glu Gly
17210                 17215                 17220

gtg   tac act cac gca ttt   acc tgg tgt acc acg   gga agc tgg ctg   92226
Val   Tyr Thr His Ala Phe   Thr Trp Cys Thr Thr   Gly Ser Trp Leu
17225                 17230                 17235

tgg   aat tta caa aca aac   acg cct ccg gat tta   gtt ggc gtg cca   92271
Trp   Asn Leu Gln Thr Asn   Thr Pro Pro Asp Leu   Val Gly Val Pro
17240                 17245                 17250
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tgg   cga agt cag gcg gcg   cga gat tta aag gag   cgt ctt tca gga   92316
Trp   Arg Ser Gln Ala Ala   Arg Asp Leu Lys Glu   Arg Leu Ser Gly
17255                 17260                 17265

ctc   cta tgt acc gca aca   aaa att cga gaa cgg   ata cag gaa aat   92361
Leu   Leu Cys Thr Ala Thr   Lys Ile Arg Glu Arg   Ile Gln Glu Asn
17270                 17275                 17280

tgc   ata tgg gac cat gtc   cta tac gac ata tgg   gcc gga caa gtt   92406
Cys   Ile Trp Asp His Val   Leu Tyr Asp Ile Trp   Ala Gly Gln Val
17285                 17290                 17295

gtg   gag gct gcc aga aaa   aca tac gtc gat ttt   ttt gaa cat gtt   92451
Val   Glu Ala Ala Arg Lys   Thr Tyr Val Asp Phe   Phe Glu His Val
17300                 17305                 17310

ttt   gat cgc cgt tat act   ccg gta tac tgg agt   ctt cag gag caa   92496
Phe   Asp Arg Arg Tyr Thr   Pro Val Tyr Trp Ser   Leu Gln Glu Gln
17315                 17320                 17325

aat   tcg gaa aca aaa gca   ata ccg gca tct tat   ctg aca tac gga   92541
Asn   Ser Glu Thr Lys Ala   Ile Pro Ala Ser Tyr   Leu Thr Tyr Gly
17330                 17335                 17340

cac   atg caa gat aag gat   tat aaa cca aga cag   ata att atg gtt   92586
His   Met Gln Asp Lys Asp   Tyr Lys Pro Arg Gln   Ile Ile Met Val
17345                 17350                 17355

cgt   aat ccc aac cca cat   gga cct cct act gtt   gtt tac tgg gaa   92631
Arg   Asn Pro Asn Pro His   Gly Pro Pro Thr Val   Val Tyr Trp Glu
17360                 17365                 17370

ttg   cta cca tcg tgt gcc   tgt att ccc ccc ata   gac tgc gct gct   92676
Leu   Leu Pro Ser Cys Ala   Cys Ile Pro Pro Ile   Asp Cys Ala Ala
17375                 17380                 17385

cat   ctc aag ccc ctt ata   cac acg ttt gtc act   att att aac cat   92721
His   Leu Lys Pro Leu Ile   His Thr Phe Val Thr   Ile Ile Asn His
17390                 17395                 17400

ctt   cta gat gct cat aat   gat ttt tca agt cca   tca ttg aaa ttt   92766
Leu   Leu Asp Ala His Asn   Asp Phe Ser Ser Pro   Ser Leu Lys Phe
17405                 17410                 17415

act   gac gat ccc ctt gct   tca tat aac ttc ttg   ttt tta tga       92808
Thr   Asp Asp Pro Leu Ala   Ser Tyr Asn Phe Leu   Phe Leu
17420                 17425                 17430

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gagggttcag taacttaaca aacatataat gcggcaatac gcgggttttt gtaaaggggt   93168

tgttatcaac gacatacatt agagtgttta acaaccataa aactccctca tataaaaacc   93228

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aaccacg atg aaa aga    tca att tct gta gac    agt tct tca ccc aaa    96034
        Met Lys Arg    Ser Ile Ser Val Asp    Ser Ser Ser Pro Lys
              17435                  17440                  17445

aac gtt ttt aat cca    gag acg ccc aat gga    ttt gat gac agt gta    96079
Asn Val Phe Asn Pro    Glu Thr Pro Asn Gly    Phe Asp Asp Ser Val
              17450                  17455                  17460

tat tta aac ttc acc    tct atg cat agc att    caa cct atc ctc tca    96124
Tyr Leu Asn Phe Thr    Ser Met His Ser Ile    Gln Pro Ile Leu Ser
              17465                  17470                  17475

cgg att cga gaa ctt    gcc gca att acg att    cca aaa gaa cgt gtt    96169
Arg Ile Arg Glu Leu    Ala Ala Ile Thr Ile    Pro Lys Glu Arg Val
              17480                  17485                  17490

ccg cgg ttg tgt tgg    ttt aaa cag tta ctc    gaa ctg caa gcg cct    96214
Pro Arg Leu Cys Trp    Phe Lys Gln Leu Leu    Glu Leu Gln Ala Pro
              17495                  17500                  17505

cct gaa atg cag agg    aat gag ctc ccc ttc    tcc gtt tat tta att    96259
Pro Glu Met Gln Arg    Asn Glu Leu Pro Phe    Ser Val Tyr Leu Ile
              17510                  17515                  17520

agc gga aat gcc ggc    tcc gga aaa agc acg    tgt atc caa acg ctt    96304
Ser Gly Asn Ala Gly    Ser Gly Lys Ser Thr    Cys Ile Gln Thr Leu
              17525                  17530                  17535

aac gaa gct atc gat    tgc att att acc gga    tcc acc agg gtt gct    96349
Asn Glu Ala Ile Asp    Cys Ile Ile Thr Gly    Ser Thr Arg Val Ala
              17540                  17545                  17550

gcc caa aat gtt cat    gct aag tta tca acg    gct tat gcg agt cgt    96394
Ala Gln Asn Val His    Ala Lys Leu Ser Thr    Ala Tyr Ala Ser Arg
              17555                  17560                  17565
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ccg ata aac aca atc   ttt cat gaa ttt ggt   ttt cgc gga aat cac   96439
Pro Ile Asn Thr Ile   Phe His Glu Phe Gly   Phe Arg Gly Asn His
              17570                  17575                  17580

att cag gct cag ctg   ggc cgt tac gca tat   aac tgg act acg acc   96484
Ile Gln Ala Gln Leu   Gly Arg Tyr Ala Tyr   Asn Trp Thr Thr Thr
              17585                  17590                  17595

ccc cct tct att gag   gac ctg caa aaa aga   gat att gta tac tac   96529
Pro Pro Ser Ile Glu   Asp Leu Gln Lys Arg   Asp Ile Val Tyr Tyr
              17600                  17605                  17610

tgg gaa gtt tta att   gat ata aca aaa cga   gtg ttt caa atg ggg   96574
Trp Glu Val Leu Ile   Asp Ile Thr Lys Arg   Val Phe Gln Met Gly
              17615                  17620                  17625

gac gac ggt cgc gga   gga aca tcg aca ttt   aaa acc ctg tgg gca   96619
Asp Asp Gly Arg Gly   Gly Thr Ser Thr Phe   Lys Thr Leu Trp Ala
              17630                  17635                  17640

att gaa cgt ttg ctt   aat aaa cct aca ggc   tca atg tcc gga acc   96664
Ile Glu Arg Leu Leu   Asn Lys Pro Thr Gly   Ser Met Ser Gly Thr
              17645                  17650                  17655

gcg ttt atc gca tgc   ggt tcc ctt ccg gct   ttt acc cgg agc aac   96709
Ala Phe Ile Ala Cys   Gly Ser Leu Pro Ala   Phe Thr Arg Ser Asn
              17660                  17665                  17670

gtt att gtt att gat   gaa gca gga ttg cta   ggg cgt cat att ctc   96754
Val Ile Val Ile Asp   Glu Ala Gly Leu Leu   Gly Arg His Ile Leu
              17675                  17680                  17685

acg gcc gtt gtt tac   tgt tgg tgg ctt ttg   aat gct ata tat caa   96799
Thr Ala Val Val Tyr   Cys Trp Trp Leu Leu   Asn Ala Ile Tyr Gln
              17690                  17695                  17700

agc cct cag tac ata   aac ggt cga aaa ccg   gtc ata gta tgc gtc   96844
Ser Pro Gln Tyr Ile   Asn Gly Arg Lys Pro   Val Ile Val Cys Val
              17705                  17710                  17715

ggt tcg ccc acc caa   act gac tcg tta gaa   tct cat ttt caa cat   96889
Gly Ser Pro Thr Gln   Thr Asp Ser Leu Glu   Ser His Phe Gln His
              17720                  17725                  17730

gac atg cag cgt tca   cac gta act cct agt   gaa aat ata ctc acg   96934
Asp Met Gln Arg Ser   His Val Thr Pro Ser   Glu Asn Ile Leu Thr
              17735                  17740                  17745

tat ata atc tgc aat   caa act ctg cgt caa   tat act aac atc tca   96979
Tyr Ile Ile Cys Asn   Gln Thr Leu Arg Gln   Tyr Thr Asn Ile Ser
              17750                  17755                  17760

cat aac tgg gca atc   ttt att aat aac aaa   cga tgt caa gag gac   97024
His Asn Trp Ala Ile   Phe Ile Asn Asn Lys   Arg Cys Gln Glu Asp
              17765                  17770                  17775

gat ttt gga aat ctt   tta aaa acg ctt gag   tac ggg cta cct att   97069
Asp Phe Gly Asn Leu   Leu Lys Thr Leu Glu   Tyr Gly Leu Pro Ile
              17780                  17785                  17790

acc gaa gca cat gcg   cgt ctg gtc gat aca   ttt gtt gta cct gca   97114
Thr Glu Ala His Ala   Arg Leu Val Asp Thr   Phe Val Val Pro Ala
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Ser Tyr Ile Asn Asn     Pro Ala Asn Leu Pro     Gly Trp Thr Arg Leu
                  17810                     17815                     17820

tat tcg tcg cat aag     gag gtg agc gcg tat     atg agt aag tta cac     97204
Tyr Ser Ser His Lys     Glu Val Ser Ala Tyr     Met Ser Lys Leu His
                  17825                     17830                     17835

gcg cat tta aaa cta     tcg aaa aat gac cat     ttt tct gtg ttt gcc     97249
Ala His Leu Lys Leu     Ser Lys Asn Asp His     Phe Ser Val Phe Ala
                  17840                     17845                     17850

tta ccg act tat aca     ttc atc cgg cta acg     gca ttt gat gaa tac     97294
Leu Pro Thr Tyr Thr     Phe Ile Arg Leu Thr     Ala Phe Asp Glu Tyr
                  17855                     17860                     17865

cgc aaa tta acg gga     caa ccc gga ctt tct     gtt gaa cat tgg ata     97339
Arg Lys Leu Thr Gly     Gln Pro Gly Leu Ser     Val Glu His Trp Ile
                  17870                     17875                     17880

cgg gca aac tcc ggt     cgt ttg cac aat tat     tcc caa agc cga gat     97384
Arg Ala Asn Ser Gly     Arg Leu His Asn Tyr     Ser Gln Ser Arg Asp
                  17885                     17890                     17895

cat gac atg gga aca     gtt aaa tac gaa aca     cat tca aat cgc gac     97429
His Asp Met Gly Thr     Val Lys Tyr Glu Thr     His Ser Asn Arg Asp
                  17900                     17905                     17910

tta att gta gcc cgt     aca gac atc act tac     gtg cta aat agt ctc     97474
Leu Ile Val Ala Arg     Thr Asp Ile Thr Tyr     Val Leu Asn Ser Leu
                  17915                     17920                     17925

gta gtt gta acc aca     aga cta cgt aag tta     gtt att gga ttc agt     97519
Val Val Val Thr Thr     Arg Leu Arg Lys Leu     Val Ile Gly Phe Ser
                  17930                     17935                     17940

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Gly Thr Phe Gln Ser     Phe Ala Lys Val Leu     Arg Asp Asp Ser Phe
                  17945                     17950                     17955

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Val Lys Ala Arg Gly     Glu Thr Ser Ile Glu     Tyr Ala Tyr Arg Phe
                  17960                     17965                     17970

ctg tca aac cta atc     ttt gga ggc ttg att     aac ttt tac aat ttt     97654
Leu Ser Asn Leu Ile     Phe Gly Gly Leu Ile     Asn Phe Tyr Asn Phe
                  17975                     17980                     17985

ttg tta aat aaa aac     cta cat ccc gat aag     gta tcg tta gca tac     97699
Leu Leu Asn Lys Asn     Leu His Pro Asp Lys     Val Ser Leu Ala Tyr
                  17990                     17995                     18000

aaa cgg tta gct gcc     tta acc ctg gag tta     ttg tct gga aca aac     97744
Lys Arg Leu Ala Ala     Leu Thr Leu Glu Leu     Leu Ser Gly Thr Asn
                  18005                     18010                     18015

aaa gcc ccc tta cac     gaa gca gcg gtt aat     ggg gcg ggt gcc ggg     97789
Lys Ala Pro Leu His     Glu Ala Ala Val Asn     Gly Ala Gly Ala Gly
                  18020                     18025                     18030

att gac tgt gat ggt     gca gct act tct gcc     gat aaa gcc ttc tgc     97834
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Ile Asp Cys Asp Gly   Ala Ala Thr Ser Ala   Asp Lys Ala Phe Cys
          18035                   18040                   18045

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Phe Thr Lys Ala Pro   Glu Ser Lys Val Thr   Ala Ser Ile Pro Glu
          18050                   18055                   18060

gac ccg gat gat gta   att ttt acg gca ctt   aac gac gag gtt att   97924
Asp Pro Asp Asp Val   Ile Phe Thr Ala Leu   Asn Asp Glu Val Ile
          18065                   18070                   18075

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Asp Leu Val Tyr Cys   Gln Tyr Glu Phe Ser   Tyr Pro Lys Ser Ser
          18080                   18085                   18090

aat gag gtc cat gct   cag ttt ctg tta atg   aaa gct att tac gat   98014
Asn Glu Val His Ala   Gln Phe Leu Leu Met   Lys Ala Ile Tyr Asp
          18095                   18100                   18105

ggt cga tat gcc ata   tta gca gag ctt ttc   gaa agc agc ttt aca   98059
Gly Arg Tyr Ala Ile   Leu Ala Glu Leu Phe   Glu Ser Ser Phe Thr
          18110                   18115                   18120

acc gcc ccc ttt agc   gcg tat gtc gat aat   gtt aat ttc aac gga   98104
Thr Ala Pro Phe Ser   Ala Tyr Val Asp Asn   Val Asn Phe Asn Gly
          18125                   18130                   18135

agc gag ctt ttg atc   ggc aat gtg cgg ggg   ggg ctg tta tct ttg   98149
Ser Glu Leu Leu Ile   Gly Asn Val Arg Gly   Gly Leu Leu Ser Leu
          18140                   18145                   18150

gca tta caa aca gat   acg tat acc ctt ttg   ggg tat act ttt gca   98194
Ala Leu Gln Thr Asp   Thr Tyr Thr Leu Leu   Gly Tyr Thr Phe Ala
          18155                   18160                   18165

ccc gtg cca gtc ttt   gta gag gaa ctg acc   cga aaa aag ctg tac   98239
Pro Val Pro Val Phe   Val Glu Glu Leu Thr   Arg Lys Lys Leu Tyr
          18170                   18175                   18180

cgc gaa act acc gaa   atg tta tat gct cta   cac gta cct ctt atg   98284
Arg Glu Thr Thr Glu   Met Leu Tyr Ala Leu   His Val Pro Leu Met
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gtc tta cag gat caa   cat ggg ttt gtg tcc   atc gta aac gct aac   98329
Val Leu Gln Asp Gln   His Gly Phe Val Ser   Ile Val Asn Ala Asn
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gta tgt gaa ttt acc   gag tct ata gag gat   gca gaa ttg gca atg   98374
Val Cys Glu Phe Thr   Glu Ser Ile Glu Asp   Ala Glu Leu Ala Met
          18215                   18220                   18225

gcc acc acg gtg gac   tat ggc ctt agt tct   aaa cta gcc atg aca   98419
Ala Thr Thr Val Asp   Tyr Gly Leu Ser Ser   Lys Leu Ala Met Thr
          18230                   18235                   18240

att gca cgc tca cag   ggt ctg agt tta gag   aag gta gct atc tgt   98464
Ile Ala Arg Ser Gln   Gly Leu Ser Leu Glu   Lys Val Ala Ile Cys
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ttt acg gcg gat aaa   ctg cgc cta aat agt   gtg tat gtt gcc atg   98509
Phe Thr Ala Asp Lys   Leu Arg Leu Asn Ser   Val Tyr Val Ala Met
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cta cgg gaa cga tat   gaa aaa tcc gca gaa   att agc gat cac att        98599
Leu Arg Glu Arg Tyr   Glu Lys Ser Ala Glu   Ile Ser Asp His Ile
            18290                 18295                     18300

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Leu Ala Ala Leu Arg   Asp Pro Asn Val His   Val Val Tyr
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tcataacgcg acagcgtcga gtcggtttta agggaaaagg ttactacggc cccaaggac 110580
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atg ttt  tgc acc tca ccg gct  acg cgg ggc gac tcg  tcc gag tca 110625
Met Phe  Cys Thr Ser Pro Ala  Thr Arg Gly Asp Ser  Ser Glu Ser
    18315            18320            18325

aaa ccc  ggg gca tcg gtt gat  gtt aac gga aag atg  gaa tat gga 110670
Lys Pro  Gly Ala Ser Val Asp  Val Asn Gly Lys Met  Glu Tyr Gly
    18330            18335            18340

tct gca  cca gga ccc ctg aac  ggc cgg gat acg tcg  cgg ggc ccc 110715
Ser Ala  Pro Gly Pro Leu Asn  Gly Arg Asp Thr Ser  Arg Gly Pro
    18345            18350            18355

ggc gcg  ttt tgt act ccg ggt  tgg gag atc cac ccg  gcc agg ctc 110760
Gly Ala  Phe Cys Thr Pro Gly  Trp Glu Ile His Pro  Ala Arg Leu
    18360            18365            18370

gtt gag  gac atc aac cgt gtt  ttt tta tgt att gca  cag tcg tcg 110805
Val Glu  Asp Ile Asn Arg Val  Phe Leu Cys Ile Ala  Gln Ser Ser
    18375            18380            18385

gga cgc  gtc acg cga gat tca  cga aga ttg cgg cgc  ata tgc ctc 110850
Gly Arg  Val Thr Arg Asp Ser  Arg Arg Leu Arg Arg  Ile Cys Leu
    18390            18395            18400

gac ttt  tat cta atg ggt cgc  acc aga cag cgt ccc  acg tta gcg 110895
Asp Phe  Tyr Leu Met Gly Arg  Thr Arg Gln Arg Pro  Thr Leu Ala
    18405            18410            18415

tgc tgg  gag gaa ttg tta cag  ctt caa ccc acc cag  acg cag tgc 110940
Cys Trp  Glu Glu Leu Leu Gln  Leu Gln Pro Thr Gln  Thr Gln Cys
    18420            18425            18430
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tta cgc  gct act tta atg gaa  gtg tcc cat cga ccc   cct cgg ggg 110985
Leu Arg  Ala Thr Leu Met Glu  Val Ser His Arg Pro   Pro Arg Gly
    18435                18440                18445

gaa gac  ggg ttc att gag gcg  ccg aat gtt cct ttg   cat agg agc 111030
Glu Asp  Gly Phe Ile Glu Ala  Pro Asn Val Pro Leu   His Arg Ser
    18450                18455                18460

gca ctg  gaa tgt gac gta tct  gat gat ggt ggt gaa   gac gat agc 111075
Ala Leu  Glu Cys Asp Val Ser  Asp Asp Gly Gly Glu   Asp Asp Ser
    18465                18470                18475

gac gat  gat ggg tct acg cca  tcg gat gta att gaa   ttt cgg gat 111120
Asp Asp  Asp Gly Ser Thr Pro  Ser Asp Val Ile Glu   Phe Arg Asp
    18480                18485                18490

tcc gac  gcg gaa tca tcg gac  ggg gaa gac ttt ata   gtg gaa gaa 111165
Ser Asp  Ala Glu Ser Ser Asp  Gly Glu Asp Phe Ile   Val Glu Glu
    18495                18500                18505

gaa tca  gag gag agc acc gat  tct tgt gaa cca gac   ggg gta ccc 111210
Glu Ser  Glu Glu Ser Thr Asp  Ser Cys Glu Pro Asp   Gly Val Pro
    18510                18515                18520

ggc gat  tgt tat cga gac ggg  gat ggg tgc aac acc   ccg tcc cca 111255
Gly Asp  Cys Tyr Arg Asp Gly  Asp Gly Cys Asn Thr   Pro Ser Pro
    18525                18530                18535

aag aga  ccc cag cgt gcc atc  gag cga tac gcg ggt   gca gaa acc 111300
Lys Arg  Pro Gln Arg Ala Ile  Glu Arg Tyr Ala Gly   Ala Glu Thr
    18540                18545                18550

gcg gaa  tat aca gcc gcg aaa  gcg ctc acc gcg ttg   ggc gag ggg 111345
Ala Glu  Tyr Thr Ala Ala Lys  Ala Leu Thr Ala Leu   Gly Glu Gly
    18555                18560                18565

ggt gta  gat tgg aag cga cgt  cga cac gaa gcc ccg   cgc cgg cat 111390
Gly Val  Asp Trp Lys Arg Arg  Arg His Glu Ala Pro   Arg Arg His
    18570                18575                18580

gat ata  ccg ccc ccc cat ggc  gtg tag tctttataaa taaatacaat    111437
Asp Ile  Pro Pro Pro His Gly  Val
    18585                18590

ggtttggctc gtgtcttttt ttgatgtctg tctgtggggg agtggggtgt tgtggatatt 111497

agagggtaga gggtgctggt ttgaacgtct ccattaaccc acggggtccc cacacgggcc 111557

gtgtggt atg aat ctc tgc   gga tcc cgc ggt gag   cac ccg ggc ggt    111603
        Met Asn Leu Cys   Gly Ser Arg Gly Glu   His Pro Gly Gly
             18595                18600

gaa  tat gcc gga ctt tac   tgc aca cga cac gat   acc ccc gcg cac 111648
Glu  Tyr Ala Gly Leu Tyr   Cys Thr Arg His Asp   Thr Pro Ala His
18605                18610                18615

cag  gct ctc atg aac gac   gcc gaa cgg tac ttc   gcc gcc gcg cta 111693
Gln  Ala Leu Met Asn Asp   Ala Glu Arg Tyr Phe   Ala Ala Ala Leu
18620                18625                18630

tgc  gcc ata tct acc gag   gcc tac gag gct ttt   ata cac agc ccc 111738
Cys  Ala Ile Ser Thr Glu   Ala Tyr Glu Ala Phe   Ile His Ser Pro
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18635                    18640              18645

tcc  gag aga ccg tgc gcg  agt ttg tgg ggg agg  gca aag gac gcc 111783
Ser  Glu Arg Pro Cys Ala  Ser Leu Trp Gly Arg  Ala Lys Asp Ala
18650                    18655              18660

ttc  gga cgg atg tgc ggg  gag ctc gca gcg gat  aga caa cgt cca 111828
Phe  Gly Arg Met Cys Gly  Glu Leu Ala Ala Asp  Arg Gln Arg Pro
18665                    18670              18675

ccc  tcg gtt ccg ccg atc  cgc aga gcg gtg tta  tcg tta tta cgc 111873
Pro  Ser Val Pro Pro Ile  Arg Arg Ala Val Leu  Ser Leu Leu Arg
18680                    18685              18690

gag  caa tgc atg ccg gat  cca caa tcg cat ctg  gag ctc agc gag 111918
Glu  Gln Cys Met Pro Asp  Pro Gln Ser His Leu  Glu Leu Ser Glu
18695                    18700              18705

cgg  ctg ata ttg atg gca  tat tgg tgc tgt ttg  gga cac gcc gga 111963
Arg  Leu Ile Leu Met Ala  Tyr Trp Cys Cys Leu  Gly His Ala Gly
18710                    18715              18720

ctt  ccg act att gga ttg  tcg ccc gat aat aaa  tgc atc cgc gcc 112008
Leu  Pro Thr Ile Gly Leu  Ser Pro Asp Asn Lys  Cys Ile Arg Ala
18725                    18730              18735

gaa  tta tat gac cgc ccc  ggg gga att tgt cac  agg ctt ttt gac 112053
Glu  Leu Tyr Asp Arg Pro  Gly Gly Ile Cys His  Arg Leu Phe Asp
18740                    18745              18750

gcg  tac ctg ggc tgc ggg  tcc ctt gga gtc cca  aga acc tac gag 112098
Ala  Tyr Leu Gly Cys Gly  Ser Leu Gly Val Pro  Arg Thr Tyr Glu
18755                    18760              18765

aga  tcc tga caccccatcc ctttatatag aaaaaaaaaa taaatttaaa        112147
Arg  Ser
18770

acatacaccg gataaaagcg tactgttttt tatttaaatt tacacgctcg gcgttgcccc 112207

ggttcggtga tcaccgggtc ttatctatat acaccgtgta actcgaaccc ccgtgactcc 112267

ctccaatcgc gttaccaaac tcttcttccg tatccgtaga ttccgagtcc tcgaaatcgt 112327

ccacttatcc aacaaattgt gacgttatat atcccaaggc aaaggccgct cccgtcatag 112387

caaatacaaa gacaattatt agcgtaatat aacagaattt tttacgatga tatattttat 112447

gttgatattt tccaattcga cgcaaaaatt catctgccgt ttcattttcg ctatcactat 112507

aataacactt ttcagccgaa cggctcggtt gtatggctgt tatcgttgta ttatttggtt 112567

gcgctcgcgg ggttaccacc gcttccatca gtaaggccac ggcctcaccc tccatggtgt 112627

tttgtccggc catagaaatc cagattgtaa ggccagcagg ctagtttaaa agtgtttaat 112687

accacacctt ttgatattta tatacatgca agattctaga ttattcatca ataggtcgtt 112747

taaagcgcgt tttcataaac gttgtcagct ataccgacat tctcacaaag aggtaaagtt 112807

accttacgtt attattaaat aaaacatgta gacattatta ataatcctag gaacaatcaa 112867

atccatattt gtaagttatg tttaacccct cccctttttg tcattatctc cgccctctta 112927
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taatcggatc actttataag tgtgtcggtg agtatatttt gtacagttgt tggacaacag 112987

gtttttggtt cattaacact atcaacataa gtcggggtat acaagtata atg aac gac 113045
                                                         Met Asn Asp

gtt gat gca aca gac acc ttt gtt gga caa gga aag ttc cgt ggc 113090
Val Asp Ala Thr Asp Thr Phe Val Gly Gln Gly Lys Phe Arg Gly
18775   18780   18785

gcc atc tca aca tca ccg tca cat att atg caa aca tgt ggg ttt 113135
Ala Ile Ser Thr Ser Pro Ser His Ile Met Gln Thr Cys Gly Phe
18790   18795   18800

ata caa cag atg ttt cca gtt gaa atg tcg ccc ggc ata gaa tct 113180
Ile Gln Gln Met Phe Pro Val Glu Met Ser Pro Gly Ile Glu Ser
18805   18810   18815

gag gat gat ccc aat tat gac gtt aac atg gat ata cag tct ttt 113225
Glu Asp Asp Pro Asn Tyr Asp Val Asn Met Asp Ile Gln Ser Phe
18820   18825   18830

aat ata ttt gat ggt gta cac gaa act gaa gcc gaa gcc tct gtg 113270
Asn Ile Phe Asp Gly Val His Glu Thr Glu Ala Glu Ala Ser Val
18835   18840   18845

gca ttg tgc gca gaa gca cgc gtt gga att aat aaa gcg gga ttt 113315
Ala Leu Cys Ala Glu Ala Arg Val Gly Ile Asn Lys Ala Gly Phe
18850   18855   18860

gta ata tta aaa acg ttt aca cca ggg gcg gaa ggt ttt gcg ttt 113360
Val Ile Leu Lys Thr Phe Thr Pro Gly Ala Glu Gly Phe Ala Phe
18865   18870   18875

gcg tgt atg gac agt aaa aca tgt gaa cat gtg gtc att aaa gcg 113405
Ala Cys Met Asp Ser Lys Thr Cys Glu His Val Val Ile Lys Ala
18880   18885   18890

ggt caa cgt caa gga acg gcc acc gag gca acc gtg tta aga gcg 113450
Gly Gln Arg Gln Gly Thr Ala Thr Glu Ala Thr Val Leu Arg Ala
18895   18900   18905

tta acc cac cca tcc gtt gta cag ctt aaa gga acg ttt acg tat 113495
Leu Thr His Pro Ser Val Val Gln Leu Lys Gly Thr Phe Thr Tyr
18910   18915   18920

aac aaa atg aca tgt ctt ata tta cca cgt tac cga aca gat tta 113540
Asn Lys Met Thr Cys Leu Ile Leu Pro Arg Tyr Arg Thr Asp Leu
18925   18930   18935

tac tgc tat cta gct gca aag cgc aac ctc ccc ata tgt gac att 113585
Tyr Cys Tyr Leu Ala Ala Lys Arg Asn Leu Pro Ile Cys Asp Ile
18940   18945   18950

tta gca att cag cga tct gta tta cgc gcg tta cag tat ctt cat 113630
Leu Ala Ile Gln Arg Ser Val Leu Arg Ala Leu Gln Tyr Leu His
18955   18960   18965

aat aac agt att att cac cgt gat ata aaa tct gaa aat ata ttt 113675
Asn Asn Ser Ile Ile His Arg Asp Ile Lys Ser Glu Asn Ile Phe
18970   18975   18980

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att   aac cac cca ggt gat   gtt tgt gtg gga gac   ttt gga gca gcg 113720
Ile   Asn His Pro Gly Asp   Val Cys Val Gly Asp   Phe Gly Ala Ala
18985                 18990             18995

tgt   ttc ccc gtg gat att   aat gcc aac agg tat   tat ggc tgg gct 113765
Cys   Phe Pro Val Asp Ile   Asn Ala Asn Arg Tyr   Tyr Gly Trp Ala
19000                 19005             19010

gga   aca atc gcc aca aac   tct cct gag tta ttg   gct aga gat cca 113810
Gly   Thr Ile Ala Thr Asn   Ser Pro Glu Leu Leu   Ala Arg Asp Pro
19015                 19020             19025

tat   gga cct gcc gtg gac   ata tgg agt gcc ggg   att gta tta ttt 113855
Tyr   Gly Pro Ala Val Asp   Ile Trp Ser Ala Gly   Ile Val Leu Phe
19030                 19035             19040

gaa   atg gct aca gga cag   aac tcg tta ttt gaa   cga gac ggt tta 113900
Glu   Met Ala Thr Gly Gln   Asn Ser Leu Phe Glu   Arg Asp Gly Leu
19045                 19050             19055

gat   ggc aat tgt gac agt   gag cgt caa att aaa   ctt att ata cga 113945
Asp   Gly Asn Cys Asp Ser   Glu Arg Gln Ile Lys   Leu Ile Ile Arg
19060                 19065             19070

cga   tct gga act cat ccc   aat gaa ttt ccc att   aac cct aca tca 113990
Arg   Ser Gly Thr His Pro   Asn Glu Phe Pro Ile   Asn Pro Thr Ser
19075                 19080             19085

aat   ctt cgt cga caa tac   att ggt ttg gca aaa   cgg tct tct cga 114035
Asn   Leu Arg Arg Gln Tyr   Ile Gly Leu Ala Lys   Arg Ser Ser Arg
19090                 19095             19100

aaa   ccc gga tcc agg cca   ttg tgg aca aat cta   tat gag ttg cca 114080
Lys   Pro Gly Ser Arg Pro   Leu Trp Thr Asn Leu   Tyr Glu Leu Pro
19105                 19110             19115

att   gat ttg gag tat ttg   ata tgt aag atg tta   tcg ttt gac gca 114125
Ile   Asp Leu Glu Tyr Leu   Ile Cys Lys Met Leu   Ser Phe Asp Ala
19120                 19125             19130

cgt   cat cga cca tca gca   gag gtg ttg ctt aac   cac tct gtt ttc 114170
Arg   His Arg Pro Ser Ala   Glu Val Leu Leu Asn   His Ser Val Phe
19135                 19140             19145

caa   act ctt ccc gat cca   tat cca aat cca atg   gaa gtt gga gat 114215
Gln   Thr Leu Pro Asp Pro   Tyr Pro Asn Pro Met   Glu Val Gly Asp
19150                 19155             19160

taa aattcattaa gcctgttaat aaaatattgt ataaattgtg tttataacgt        114268

ataacccgtt aaggcaaata gggtacaaac gcgcaatgtt ttgaaatact aatataaata 114328

acataaccaa tagaaactta atacagagtc acgccccatt acaacaagga taaaacacgg 114388

gatcattttc ttaacattgt agtagcgctg aaaagcgtcc cctcccccgg ctcacagagc 114448

tgctcttcgg tgtagttggg tatactggtg cgcctcattt aatcgcg atg   ttt tta 114504
                                                    Met   Phe Leu
                                                    19165

atc caa tgt   ttg ata tcg gcc gtt   ata ttt tac ata caa   gtg acc 114549
Ile Gln Cys   Leu Ile Ser Ala Val   Ile Phe Tyr Ile Gln   Val Thr
        19170                 19175             19180
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aac gct ttg   atc ttc aag ggc gac   cac gtg agc ttg caa   gtt aac 114594
Asn Ala Leu   Ile Phe Lys Gly Asp   His Val Ser Leu Gln   Val Asn
        19185                 19190                 19195

agc agt ctc   acg tct atc ctt att   ccc atg caa aat gat   aat tat 114639
Ser Ser Leu   Thr Ser Ile Leu Ile   Pro Met Gln Asn Asp   Asn Tyr
        19200                 19205                 19210

aca gag ata   aaa gga cag ctt gtc   ttt att gga gag caa   cta cct 114684
Thr Glu Ile   Lys Gly Gln Leu Val   Phe Ile Gly Glu Gln   Leu Pro
        19215                 19220                 19225

acc ggg aca   aac tat agc gga aca   ctg gaa ctg tta tac   gcg gat 114729
Thr Gly Thr   Asn Tyr Ser Gly Thr   Leu Glu Leu Leu Tyr   Ala Asp
        19230                 19235                 19240

acg gtg gcg   ttt tgt ttc cgg tca   gta caa gta ata aga   tac gac 114774
Thr Val Ala   Phe Cys Phe Arg Ser   Val Gln Val Ile Arg   Tyr Asp
        19245                 19250                 19255

gga tgt ccc   cgg att aga acg agc   gct ttt att tcg tgt   agg tac 114819
Gly Cys Pro   Arg Ile Arg Thr Ser   Ala Phe Ile Ser Cys   Arg Tyr
        19260                 19265                 19270

aaa cat tcg   tgg cat tat ggt aac   tca acg gat cgg ata   tca aca 114864
Lys His Ser   Trp His Tyr Gly Asn   Ser Thr Asp Arg Ile   Ser Thr
        19275                 19280                 19285

gag ccg gat   gct ggt gta atg ttg   aaa att acc aaa ccg   gga ata 114909
Glu Pro Asp   Ala Gly Val Met Leu   Lys Ile Thr Lys Pro   Gly Ile
        19290                 19295                 19300

aat gat gct   ggt gtg tat gta ctt   ctt gtt cgg tta gac   cat agc 114954
Asn Asp Ala   Gly Val Tyr Val Leu   Leu Val Arg Leu Asp   His Ser
        19305                 19310                 19315

aga tcc acc   gat ggt ttc att ctt   ggt gta aat gta tat   aca gcg 114999
Arg Ser Thr   Asp Gly Phe Ile Leu   Gly Val Asn Val Tyr   Thr Ala
        19320                 19325                 19330

ggc tcg cat   cac aac att cac ggg   gtt atc tac act tct   ccg tct 115044
Gly Ser His   His Asn Ile His Gly   Val Ile Tyr Thr Ser   Pro Ser
        19335                 19340                 19345

cta cag aat   gga tat tct aca aga   gcc ctt ttt caa caa   gct cgt 115089
Leu Gln Asn   Gly Tyr Ser Thr Arg   Ala Leu Phe Gln Gln   Ala Arg
        19350                 19355                 19360

ttg tgt gat   tta ccc gcg aca ccc   aaa ggg tcc ggt acc   tcc ctg 115134
Leu Cys Asp   Leu Pro Ala Thr Pro   Lys Gly Ser Gly Thr   Ser Leu
        19365                 19370                 19375

ttt caa cat   atg ctt gat ctt cgt   gcc ggt aaa tcg tta   gag gat 115179
Phe Gln His   Met Leu Asp Leu Arg   Ala Gly Lys Ser Leu   Glu Asp
        19380                 19385                 19390

aac cct tgg   tta cat gag gac gtt   gtt acg aca gaa act   aag tcc 115224
Asn Pro Trp   Leu His Glu Asp Val   Val Thr Thr Glu Thr   Lys Ser
        19395                 19400                 19405

gtt gtt aag   gag ggg ata gaa aat   cac gta tat cca acg   gat atg 115269
Val Val Lys   Glu Gly Ile Glu Asn   His Val Tyr Pro Thr   Asp Met
        19410
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          19410                       19415                      19420
tcc acg tta   ccc gaa aag tcc ctt   aat gat cct cca gaa   aat cta 115314
Ser Thr Leu   Pro Glu Lys Ser Leu   Asn Asp Pro Pro Glu   Asn Leu
          19425                       19430                      19435

ctt ata att   att cct ata gta gcg   tct gtc atg atc ctc   acc gcc 115359
Leu Ile Ile   Ile Pro Ile Val Ala   Ser Val Met Ile Leu   Thr Ala
          19440                       19445                      19450

atg gtt att   gtt att gta ata agc   gtt aag cga cgt aga   att aaa 115404
Met Val Ile   Val Ile Val Ile Ser   Val Lys Arg Arg Arg   Ile Lys
          19455                       19460                      19465

aaa cat cca   att tat cgc cca aat   aca aaa aca aga agg   ggc ata 115449
Lys His Pro   Ile Tyr Arg Pro Asn   Thr Lys Thr Arg Arg   Gly Ile
          19470                       19475                      19480

caa aat gcg   aca cca gaa tcc gat   gtg atg ttg gag gcc   gcc att 115494
Gln Asn Ala   Thr Pro Glu Ser Asp   Val Met Leu Glu Ala   Ala Ile
          19485                       19490                      19495

gca caa cta   gca acg att cgc gaa   gaa tcc ccc cca cat   tcc gtt 115539
Ala Gln Leu   Ala Thr Ile Arg Glu   Glu Ser Pro Pro His   Ser Val
          19500                       19505                      19510

gta aac ccg   ttt gtt aaa tag aactaattat cccggatttt atattaaata      115590
Val Asn Pro   Phe Val Lys
          19515

aactatatgc gttttattta gcgttttgat tacgcgttgt gatatgaggg gaaggattaa 115650

gaatctccta actataagtt aacacgcccca catttgggcg gggatgtttt atgaagcctt 115710

aaaggccgag ctggtataca cgagagcagt ccatggtttt agacctcggg cgaattgcgt 115770

ggtttttaagt gactatattc cgagggtcgc ctgtaat atg ggg   aca gtt aat      115822
                                           Met Gly   Thr Val Asn
                                                       19520

aaa cct   gtg gtg ggg gta ttg   atg ggg ttc gga att   atc acg gga 115867
Lys Pro   Val Val Gly Val Leu   Met Gly Phe Gly Ile   Ile Thr Gly
    19525                       19530                      19535

acg ttg   cgt ata acg aat ccg   gtc aga gca tcc gtc   ttg cga tac 115912
Thr Leu   Arg Ile Thr Asn Pro   Val Arg Ala Ser Val   Leu Arg Tyr
    19540                       19545                      19550

gat gat   ttt cac acc gat gaa   gac aaa ctg gat aca   aac tcc gta 115957
Asp Asp   Phe His Thr Asp Glu   Asp Lys Leu Asp Thr   Asn Ser Val
    19555                       19560                      19565

tat gag   cct tac tac cat tca   gat cat gcg gag tct   tca tgg gta 116002
Tyr Glu   Pro Tyr Tyr His Ser   Asp His Ala Glu Ser   Ser Trp Val
    19570                       19575                      19580

aat cgg   gga gag tct tcg cga   aaa gcg tac gat cat   aac tca cct 116047
Asn Arg   Gly Glu Ser Ser Arg   Lys Ala Tyr Asp His   Asn Ser Pro
    19585                       19590                      19595

tat ata   tgg cca cgt aat gat   tat gat gga ttt tta   gag aac gca 116092
Tyr Ile   Trp Pro Arg Asn Asp   Tyr Asp Gly Phe Leu   Glu Asn Ala
    19600                       19605                      19610
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cac gaa  cac cat ggg gtg tat  aat cag ggc cgt ggt  atc gat agc 116137
His Glu  His His Gly Val Tyr  Asn Gln Gly Arg Gly  Ile Asp Ser
    19615              19620              19625

ggg gaa  cgg tta atg caa ccc  aca caa atg tct gca  cag gag gat 116182
Gly Glu  Arg Leu Met Gln Pro  Thr Gln Met Ser Ala  Gln Glu Asp
    19630              19635              19640

ctt ggg  gac gat acg ggc atc  cac gtt atc cct acg  tta aac ggc 116227
Leu Gly  Asp Asp Thr Gly Ile  His Val Ile Pro Thr  Leu Asn Gly
    19645              19650              19655

gat gac  aga cat aaa att gta  aat gtg gac caa cgt  caa tac ggt 116272
Asp Asp  Arg His Lys Ile Val  Asn Val Asp Gln Arg  Gln Tyr Gly
    19660              19665              19670

gac gtg  ttt aaa gga gat ctt  aat cca aaa ccc caa  ggc caa aga 116317
Asp Val  Phe Lys Gly Asp Leu  Asn Pro Lys Pro Gln  Gly Gln Arg
    19675              19680              19685

ctc att  gag gtg tca gtg gaa  gaa aat cac ccg ttt  act tta cgc 116362
Leu Ile  Glu Val Ser Val Glu  Glu Asn His Pro Phe  Thr Leu Arg
    19690              19695              19700

gca ccg  att cag cgg att tat  gga gtc cgg tac acc  gag act tgg 116407
Ala Pro  Ile Gln Arg Ile Tyr  Gly Val Arg Tyr Thr  Glu Thr Trp
    19705              19710              19715

agc ttt  ttg ccg tca tta acc  tgt acg gga gac gca  gcg ccc gcc 116452
Ser Phe  Leu Pro Ser Leu Thr  Cys Thr Gly Asp Ala  Ala Pro Ala
    19720              19725              19730

atc cag  cat ata tgt tta aaa  cat aca aca tgc ttt  caa gac gtg 116497
Ile Gln  His Ile Cys Leu Lys  His Thr Thr Cys Phe  Gln Asp Val
    19735              19740              19745

gtg gtg  gat gtg gat tgc gcg  gaa aat act aaa gag  gat cag ttg 116542
Val Val  Asp Val Asp Cys Ala  Glu Asn Thr Lys Glu  Asp Gln Leu
    19750              19755              19760

gcc gaa  atc agt tac cgt ttt  caa ggt aag aag gaa  gcg gac caa 116587
Ala Glu  Ile Ser Tyr Arg Phe  Gln Gly Lys Lys Glu  Ala Asp Gln
    19765              19770              19775

ccg tgg  att gtt gta aac acg  agc aca ctg ttt gat  gaa ctc gaa 116632
Pro Trp  Ile Val Val Asn Thr  Ser Thr Leu Phe Asp  Glu Leu Glu
    19780              19785              19790

tta gac  ccc ccc gag att gaa  ccg ggt gtc ttg aaa  gta ctt cgg 116677
Leu Asp  Pro Pro Glu Ile Glu  Pro Gly Val Leu Lys  Val Leu Arg
    19795              19800              19805

aca gaa  aaa caa tac ttg ggt  gtg tac att tgg aac  atg cgc ggc 116722
Thr Glu  Lys Gln Tyr Leu Gly  Val Tyr Ile Trp Asn  Met Arg Gly
    19810              19815              19820

tcc gat  ggt acg tct acc tac  gcc acg ttt ttg gtc  acc tgg aaa 116767
Ser Asp  Gly Thr Ser Thr Tyr  Ala Thr Phe Leu Val  Thr Trp Lys
    19825              19830              19835

ggg gat  gaa aaa aca aga aac  cct acg ccc gca gta  act cct caa 116812
Gly Asp  Glu Lys Thr Arg Asn  Pro Thr Pro Ala Val  Thr Pro Gln
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      19840                    19845                         19850
cca aga   ggg gct gag ttt cat   atg tgg aat tac cac   tcg cat gta 116857
Pro Arg   Gly Ala Glu Phe His   Met Trp Asn Tyr His   Ser His Val
      19855                    19860                         19865

ttt tca   gtt ggt gat acg ttt   agc ttg gca atg cat   ctt cag tat 116902
Phe Ser   Val Gly Asp Thr Phe   Ser Leu Ala Met His   Leu Gln Tyr
      19870                    19875                         19880

aag ata   cat gaa gcg cca ttt   gat ttg ctg tta gag   tgg ttg tat 116947
Lys Ile   His Glu Ala Pro Phe   Asp Leu Leu Leu Glu   Trp Leu Tyr
      19885                    19890                         19895

gtc ccc   atc gat cct aca tgt   caa cca atg cgg tta   tat tct acg 116992
Val Pro   Ile Asp Pro Thr Cys   Gln Pro Met Arg Leu   Tyr Ser Thr
      19900                    19905                         19910

tgt ttg   tat cat ccc aac gca   ccc caa tgc ctc tct   cat atg aat 117037
Cys Leu   Tyr His Pro Asn Ala   Pro Gln Cys Leu Ser   His Met Asn
      19915                    19920                         19925

tcc ggt   tgt aca ttt acc tcg   cca cat tta gcc cag   cgt gtt gca 117082
Ser Gly   Cys Thr Phe Thr Ser   Pro His Leu Ala Gln   Arg Val Ala
      19930                    19935                         19940

agc aca   gtg tat caa aat tgt   gaa cat gca gat aac   tac acc gca 117127
Ser Thr   Val Tyr Gln Asn Cys   Glu His Ala Asp Asn   Tyr Thr Ala
      19945                    19950                         19955

tat tgt   ctg gga ata tct cat   atg gag cct agc ttt   ggt cta atc 117172
Tyr Cys   Leu Gly Ile Ser His   Met Glu Pro Ser Phe   Gly Leu Ile
      19960                    19965                         19970

tta cac   gac ggg ggc acc acg   tta aag ttt gta gat   aca ccc gag 117217
Leu His   Asp Gly Gly Thr Thr   Leu Lys Phe Val Asp   Thr Pro Glu
      19975                    19980                         19985

agt ttg   tcg gga tta tac gtt   ttt gtg gtg tat ttt   aac ggg cat 117262
Ser Leu   Ser Gly Leu Tyr Val   Phe Val Val Tyr Phe   Asn Gly His
      19990                    19995                         20000

gtt gaa   gcc gta gca tac act   gtt gta tcc aca gta   gat cat ttt 117307
Val Glu   Ala Val Ala Tyr Thr   Val Val Ser Thr Val   Asp His Phe
      20005                    20010                         20015

gta aac   gca att gaa gag cgt   gga ttt ccg cca acg   gcc ggt cag 117352
Val Asn   Ala Ile Glu Glu Arg   Gly Phe Pro Pro Thr   Ala Gly Gln
      20020                    20025                         20030

cca ccg   gcg act act aaa ccc   aag gaa att acc ccc   gta aac ccc 117397
Pro Pro   Ala Thr Thr Lys Pro   Lys Glu Ile Thr Pro   Val Asn Pro
      20035                    20040                         20045

gga acg   tca cca ctt cta cga   tat gcc gca tgg acc   gga ggg ctt 117442
Gly Thr   Ser Pro Leu Leu Arg   Tyr Ala Ala Trp Thr   Gly Gly Leu
      20050                    20055                         20060

gca gca   gta gta ctt tta tgt   ctc gta ata ttt tta   atc tgt acg 117487
Ala Ala   Val Val Leu Leu Cys   Leu Val Ile Phe Leu   Ile Cys Thr
      20065                    20070                         20075

gct aaa   cga atg agg gtt aaa   gcc tat agg gta gac   aag tcc ccg 117532
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Ala Lys    Arg Met Arg Val Lys    Ala Tyr Arg Val Asp    Lys Ser Pro
    20080                  20085                  20090

tat aac    caa agc atg tat tac    gct ggc ctt cca gtg    gac gat ttc 117577
Tyr Asn    Gln Ser Met Tyr Tyr    Ala Gly Leu Pro Val    Asp Asp Phe
    20095                  20100                  20105

gag gac    tcg gaa tct acg gat    acg gaa gaa gag ttt    ggt aac gcg 117622
Glu Asp    Ser Glu Ser Thr Asp    Thr Glu Glu Glu Phe    Gly Asn Ala
    20110                  20115                  20120

att gga    ggg agt cac ggg ggt    tcg agt tac acg gtg    tat ata gat 117667
Ile Gly    Gly Ser His Gly Gly    Ser Ser Tyr Thr Val    Tyr Ile Asp
    20125                  20130                  20135

aag acc    cgg tga tcaccgaacc ggggcaacgc cgagcgtgta aatttaaata    117719
Lys Thr    Arg
    20140
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aaaaacagta cgcttttatc cggtgtatgt tttaaattta tttttttttt ctatataaag 117779

ggatggggtg tcaggatctc tcgtaggttc ttgggactcc aagggacccg cagcccaggt 117839

acgcgtcaaa aagcctgtga caaattcccc cggggcggtc atataattcg gcgcggatgc 117899

atttattatc gggcgacaat ccaatagtcg gaagtccggc gtgtcccaaa cagcaccaat 117959

atgccatcaa tatcagccgc tcgctgagct ccagatgcga ttgtggatcc ggcatgcatt 118019

gctcgcgtaa taacgataac accgctctgc ggatcggcgg aaccgagggt ggacgttgtc 118079

tatccgctgc gagctccccg cacatccgtc cgaaggcgtc ctttgccctc ccccacaaac 118139

tcgcgcacgg tctctcggag gggctgtgta taaaagcctc gtaggcctcg gtagatatgg 118199

cgcatagcgc ggcggcgaag taccgttcgg cgtcgttcat gagagcctgg tgcgcggggg 118259

tatcgtgtcg tgtgcagtaa agtccggcat attcaccgcc cgggtgctca ccgcgggatc 118319

cgcagagatt cataccacac ggcccgtgtg gggaccccgt gggttaatgg agacgttcaa 118379

accagcaccc tctaccctct aatatccaca acaccccact cccccacaga cagacatcaa 118439

aaaaagacac gagccaaacc attgtattta tttataaaga ctacacgcca tggggggcg 118499

gtatatcatg ccggcgcggg gcttcgtgtc gacgtcgctt ccaatctaca ccccctcgc 118559

ccaacgcggt gagcgctttc gcggctgtat attccgcggt ttctgcaccc gcgtatcgct 118619

cgatggcacg ctggggtctc tttggggacg gggtgttgca cccatccccg tctcgataac 118679

aatcgccggg taccccgtct ggttcacaag aatcggtgct ctcctctgat tcttcttcca 118739

ctataaagtc ttccccgtcc gatgattccg cgtcggaatc ccgaaattca attacatccg 118799

atggcgtaga cccatcatcg tcgctatcgt cttcaccacc atcatcagat acgtcacatt 118859

ccagtgcgct cctatgcaaa ggaacattcg gcgcctcaat gaacccgtct tcccccgag 118919

ggggtcgatg ggacacttcc attaaagtag cgcgtaagca ctgcgtctgg gtgggttgaa 118979

gctgtaacaa ttcctcccag cacgctaacg tgggacgctg tctggtgcga cccattagat 119039
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aaaagtcgag gcatatgcgc cgcaatcttc gtgaatctcg cgtgacgcgt cccgacgact 119099

gtgcaataca taaaaaaaca cggttgatgt cctcaacgag cctggccggg tggatctccc 119159

aacccggagt acaaaacgcg ccggggcccc gcgacgtatc ccggccgttc aggggtcctg 119219

gtgcagatcc atattccatc tttccgttaa catcaaccga tgccccgggt tttgactcgg 119279

acgagtcgcc ccgcgtagcc ggtgaggtgc aaaacatgtc cttggggccg tagtaacctt 119339

ttcccttaaa accgactcga cgctgtcgcg ttatgaatcg gacgaaccct gcacaacaaa 119399

acacacaccc aaacgtttac atctatgaat aaggctactt gggtaaaatg gcaatggggg 119459

attccggggc gggagacctt cgattgggtt gcctttataa caccaaaaaa aggggggggc 119519

cccgtgtgtt ttttttatc acgtcaaatc gattttaaaa agcctgccgc tccatttgga 119579

atatatatat tctgtgaaaa gcccgcccac accccataaa accgcgacat cgcgggaaca 119639

cgcgcgaaca agaaactctc tctctttctc tatatatata tatatatata tatatatata 119699

tagaaagaaa gtgcgaacgg tggttggaca catgccaaaa catgaaaacc catacagtga 119759

aaaaacggga agtgcgaatg cagatcaaaa gagtgtatcc gattggcgta caccacagac 119819

atgcggacgc ccaatttaac cccccccctt tttcacccc ccaccccacc ccattccacc 119879

ccaggaagtg cgaacgggtt tacatgcctc agatatgaag ttcttcgact tgtttttgaa 119939

taaattttt tgtgattttc tacaacggtt tagagaatta tggttataaa catcggcggg 119999

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cgcccctcc ccatcggcgg ggtaccgcgc cccctccca tcggcggggt accgcgcccc 120119

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gcgggcttcg tgccgcctga cataatcgtt gggaggggtg gtggtgtata cgcttgttga 120239

ttgcgcgaac gtaatgacga cggagaggga cccaaacaca ccgtcgacgt gcatttgatt 120299

aactagatgc cggatgggtg gaaacaaccc gtgttatata agatgttttg catgtgagac 120359

aaccccaatt gtgtttatgt atattatata tcgtctgtag acacacgatg attggttgtt 120419

atttaaacat atgtaaatga aattcacatg tctggtatcc cttgttatga tgttgtaagg 120479

tatgcggaaa tagacaccgg gcgtacatcg ccaaccagcg gtctctcctt aaacgcatac 120539

tatggtccat gaacttcccg cctcgagtct cgtccaatca ctacatcgtc ttatcattaa 120599

gaatatttac acggtgacga cacggggagg aaatatgcgg tcgaggggggg ggcacaacac 120659

gttttaagta ctgttggaac tccctcacca accgcaatcg caatcctttg aaggctgcga 120719

gagcgtttgg aaaactcggg tacgtctaaa ttcaccccag tgcg atg gat acg 120772
                                                    Met Asp Thr
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ccg    ccg atg cag cgc tct    aca ccc caa cgc gcg    ggg tcg cct gat 120817
Pro    Pro Met Gln Arg Ser    Thr Pro Gln Arg Ala    Gly Ser Pro Asp
20145                          20150                  20155
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act    ttg gag tta atg gac    ctg ttg gac gcg gcc    gcg gcg gcc gcc 120862
Thr    Leu Glu Leu Met Asp    Leu Leu Asp Ala Ala    Ala Ala Ala Ala
20160                  20165                  20170

gaa    cac agg gcc cgg gtg    gtc acc tcg agt cag    cct gac gat cta 120907
Glu    His Arg Ala Arg Val    Val Thr Ser Ser Gln    Pro Asp Asp Leu
20175                  20180                  20185

cta    ttt gga gag aac ggg    gtc atg gtg gga cgg    gaa cac gag atc 120952
Leu    Phe Gly Glu Asn Gly    Val Met Val Gly Arg    Glu His Glu Ile
20190                  20195                  20200

gtt    tca att ccc tcc gta    tcg gga ctt caa cca    gaa ccc aga acg 120997
Val    Ser Ile Pro Ser Val    Ser Gly Leu Gln Pro    Glu Pro Arg Thr
20205                  20210                  20215

gaa    gat gtt ggc gaa gag    cta aca caa gac gac    tac gta tgc gag 121042
Glu    Asp Val Gly Glu Glu    Leu Thr Gln Asp Asp    Tyr Val Cys Glu
20220                  20225                  20230

gac    ggt cag gat cta atg    ggc tcg cct gta atc    ccg ctg gcc gag 121087
Asp    Gly Gln Asp Leu Met    Gly Ser Pro Val Ile    Pro Leu Ala Glu
20235                  20240                  20245

gtc    ttc cac acc cga ttc    tcg gag gcc ggc gcg    cga gaa cca aca 121132
Val    Phe His Thr Arg Phe    Ser Glu Ala Gly Ala    Arg Glu Pro Thr
20250                  20255                  20260

gga    gcc gat cgc tcc ctt    gag aca gtc tct ctc    gga acg aag ctt 121177
Gly    Ala Asp Arg Ser Leu    Glu Thr Val Ser Leu    Gly Thr Lys Leu
20265                  20270                  20275

gct    agg tct cca aaa cca    ccg atg aac gat ggg    gaa acg ggc aga 121222
Ala    Arg Ser Pro Lys Pro    Pro Met Asn Asp Gly    Glu Thr Gly Arg
20280                  20285                  20290

ggt    acg acc cct ccg ttc    ccg cag gcc ttc tcc    cct gta tcc ccc 121267
Gly    Thr Thr Pro Pro Phe    Pro Gln Ala Phe Ser    Pro Val Ser Pro
20295                  20300                  20305

gcg    tct cct gtt gga gac    gcc gcc ggg aac gat    caa cgg gaa gac 121312
Ala    Ser Pro Val Gly Asp    Ala Ala Gly Asn Asp    Gln Arg Glu Asp
20310                  20315                  20320

cag    cgg tct ata ccc cga    caa acg acg aga gga    aat tca cca ggt 121357
Gln    Arg Ser Ile Pro Arg    Gln Thr Thr Arg Gly    Asn Ser Pro Gly
20325                  20330                  20335

ttg    ccg tcg gtg gtc cat    cga gac aga caa act    cag tcc atc tcg 121402
Leu    Pro Ser Val Val His    Arg Asp Arg Gln Thr    Gln Ser Ile Ser
20340                  20345                  20350

ggt    aaa aag ccg ggc gat    gag caa gcg ggt cat    gcg cat gca tcg 121447
Gly    Lys Lys Pro Gly Asp    Glu Gln Ala Gly His    Ala His Ala Ser
20355                  20360                  20365

ggg    gac gga gta gtt ctc    cag aaa act caa cgg    ccc gct cag gga 121492
Gly    Asp Gly Val Val Leu    Gln Lys Thr Gln Arg    Pro Ala Gln Gly
20370                  20375                  20380

aag    agc ccg aag aaa aag    act ttg aag gtt aag    gtc cca ctc ccg 121537
Lys    Ser Pro Lys Lys Lys    Thr Leu Lys Val Lys    Val Pro Leu Pro
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20385   20390   20395

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gcg  cgg aaa ccc ggt gga   cct gta ccc ggc ccg   gtt gag caa ttg 121582
Ala  Arg Lys Pro Gly Gly   Pro Val Pro Gly Pro   Val Glu Gln Leu
20400                20405                 20410

tac  cac gtc ctt tcg gac   agc gtt ccc gct aag   ggg gca aag gcg 121627
Tyr  His Val Leu Ser Asp   Ser Val Pro Ala Lys   Gly Ala Lys Ala
20415                20420                 20425

gac  ctg ccg ttt gag acc   gat gat acc cgc cca   agg aaa cat gat 121672
Asp  Leu Pro Phe Glu Thr   Asp Asp Thr Arg Pro   Arg Lys His Asp
20430                20435                 20440

gcc  cgg ggt ata aca cct   cgc gtc cct gga cgt   tcg tcg ggg ggc 121717
Ala  Arg Gly Ile Thr Pro   Arg Val Pro Gly Arg   Ser Ser Gly Gly
20445                20450                 20455

aaa  cct aga gcg ttt ttg   gcc ctg ccg gga aga   tcc cac gca cca 121762
Lys  Pro Arg Ala Phe Leu   Ala Leu Pro Gly Arg   Ser His Ala Pro
20460                20465                 20470

gac  ccg att gag gat gac   agc cca gtg gag aaa   aag cca aag agt 121807
Asp  Pro Ile Glu Asp Asp   Ser Pro Val Glu Lys   Lys Pro Lys Ser
20475                20480                 20485

cgt  gag ttt gtt tcg tct   tca tcc tct tcc tcg   tcg tgg gga tcg 121852
Arg  Glu Phe Val Ser Ser   Ser Ser Ser Ser Ser   Ser Trp Gly Ser
20490                20495                 20500

tca  tcg gag gat gaa gac   gat gaa ccc cgg cgc   gtt tcg gtg gga 121897
Ser  Ser Glu Asp Glu Asp   Asp Glu Pro Arg Arg   Val Ser Val Gly
20505                20510                 20515

agt  gaa act aca ggc agc   agg tcc gga cgc gaa   cac gcc cct tcc 121942
Ser  Glu Thr Thr Gly Ser   Arg Ser Gly Arg Glu   His Ala Pro Ser
20520                20525                 20530

ccg  tca aat tcg gat gat   tcg gac tca aat gat   ggt ggg tcg acg 121987
Pro  Ser Asn Ser Asp Asp   Ser Asp Ser Asn Asp   Gly Gly Ser Thr
20535                20540                 20545

aaa  caa aat atc caa ccg   gga tat cga tcc atc   agc ggt ccc gat 122032
Lys  Gln Asn Ile Gln Pro   Gly Tyr Arg Ser Ile   Ser Gly Pro Asp
20550                20555                 20560

ccg  agg att cgt aag acc   aaa cgt ctt gcg ggg   gaa ccg ggg cgc 122077
Pro  Arg Ile Arg Lys Thr   Lys Arg Leu Ala Gly   Glu Pro Gly Arg
20565                20570                 20575

cag  aga cag aaa tca ttt   tcc ctg ccg cga tcc   aga acc ccg ata 122122
Gln  Arg Gln Lys Ser Phe   Ser Leu Pro Arg Ser   Arg Thr Pro Ile
20580                20585                 20590

att  ccc ccg gtg tcg ggg   ccg ctc atg atg ccc   gac gga agc cct 122167
Ile  Pro Pro Val Ser Gly   Pro Leu Met Met Pro   Asp Gly Ser Pro
20595                20600                 20605

tgg  ccc gga tcg gca ccc   ctc cca tcc aac agg   gtg cgg ttt gga 122212
Trp  Pro Gly Ser Ala Pro   Leu Pro Ser Asn Arg   Val Arg Phe Gly
20610                20615                 20620

ccg  tcc ggg gag acc aga   gag ggt cac tgg gag   gat gag gct gtg 122257
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Pro   Ser Gly Glu Thr Arg   Glu Gly His Trp Glu   Asp Glu Ala Val
20625                 20630                 20635

aga   gcg gcg cgg gct cgt   tac gag gcc tca acg   gaa ccc gtg ccg  122302
Arg   Ala Ala Arg Ala Arg   Tyr Glu Ala Ser Thr   Glu Pro Val Pro
20640                 20645                 20650

ctt   tac gtg ccg gag ttg   gga gat ccg gct aga   cag tac cgc gcg  122347
Leu   Tyr Val Pro Glu Leu   Gly Asp Pro Ala Arg   Gln Tyr Arg Ala
20655                 20660                 20665

ctg   att aac ctg atc tac   tgt cca gac aga gac   cct ata gca tgg  122392
Leu   Ile Asn Leu Ile Tyr   Cys Pro Asp Arg Asp   Pro Ile Ala Trp
20670                 20675                 20680

ctc   cag aac ccc aag ctg   acc ggt gtc aac tcg   gcc ctg aac cag  122437
Leu   Gln Asn Pro Lys Leu   Thr Gly Val Asn Ser   Ala Leu Asn Gln
20685                 20690                 20695

ttc   tac caa aag ctg ttg   cca ccg gga cgg gcg   ggt acc gcc gtt  122482
Phe   Tyr Gln Lys Leu Leu   Pro Pro Gly Arg Ala   Gly Thr Ala Val
20700                 20705                 20710

acg   ggg agc gta gcg tct   ccc gtt ccg cat gta   ggc gaa gcc atg  122527
Thr   Gly Ser Val Ala Ser   Pro Val Pro His Val   Gly Glu Ala Met
20715                 20720                 20725

gcc   acg ggg gag gcc ctc   tgg gct ctc ccc cac   gcg gcc gcg gcc  122572
Ala   Thr Gly Glu Ala Leu   Trp Ala Leu Pro His   Ala Ala Ala Ala
20730                 20735                 20740

gtg   gct atg agc cgt cga   tac gac cgg gcc caa   aaa cac ttt atc  122617
Val   Ala Met Ser Arg Arg   Tyr Asp Arg Ala Gln   Lys His Phe Ile
20745                 20750                 20755

cta   cag agt ctc cgc aga   gcc ttt gcc agc atg   gca tac ccc gag  122662
Leu   Gln Ser Leu Arg Arg   Ala Phe Ala Ser Met   Ala Tyr Pro Glu
20760                 20765                 20770

gca   acg ggc tcc agt ccg   gcg gcg cgg atc tcc   cgc ggt cac cct  122707
Ala   Thr Gly Ser Ser Pro   Ala Ala Arg Ile Ser   Arg Gly His Pro
20775                 20780                 20785

tct   cca aca acc ccg gcc   aca cag gct ccc gac   cct cag ccg tcg  122752
Ser   Pro Thr Thr Pro Ala   Thr Gln Ala Pro Asp   Pro Gln Pro Ser
20790                 20795                 20800

gcc   gcc gca cgc tct ctt   tct gtg tgt cca ccg   gat gat cgt tta  122797
Ala   Ala Ala Arg Ser Leu   Ser Val Cys Pro Pro   Asp Asp Arg Leu
20805                 20810                 20815

cga   act ccg cgc aag cgc   aag tcc cag cca gtc   gag agc aga agc  122842
Arg   Thr Pro Arg Lys Arg   Lys Ser Gln Pro Val   Glu Ser Arg Ser
20820                 20825                 20830

ctc   ctc gac aag att agg   gag aca ccc gtc gcg   gac gcc cgg gtt  122887
Leu   Leu Asp Lys Ile Arg   Glu Thr Pro Val Ala   Asp Ala Arg Val
20835                 20840                 20845

gca   gac gat cat gtg gtt   tcc aag gcc aag agg   cgg gta tcc gag  122932
Ala   Asp Asp His Val Val   Ser Lys Ala Lys Arg   Arg Val Ser Glu
20850                 20855                 20860
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ccc   gtg acc atc acc tcg   ggc cct gtg gtg gat   ccc ccc gcc gta 122977
Pro   Val Thr Ile Thr Ser   Gly Pro Val Val Asp   Pro Pro Ala Val
20865                 20870                 20875

ata   acg atg cca ctt gac   gga ccg gcc cca aac   ggg gga ttt cgg 123022
Ile   Thr Met Pro Leu Asp   Gly Pro Ala Pro Asn   Gly Gly Phe Arg
20880                 20885                 20890

cgt   att ccc cgg ggg gcc   ctg cat acc ccg gtc   ccg tcg gac cag 123067
Arg   Ile Pro Arg Gly Ala   Leu His Thr Pro Val   Pro Ser Asp Gln
20895                 20900                 20905

gct   cgc aag gcg tac tgt   acc ccc gaa acc atc   gcc cgt ctg gtc 123112
Ala   Arg Lys Ala Tyr Cys   Thr Pro Glu Thr Ile   Ala Arg Leu Val
20910                 20915                 20920

gac   gac cca ttg ttt ccc   acg gcc tgg cgc cct   gcg cta agc ttt 123157
Asp   Asp Pro Leu Phe Pro   Thr Ala Trp Arg Pro   Ala Leu Ser Phe
20925                 20930                 20935

gat   ccc ggc gcc ttg gcg   gaa atc gcc gct cgg   cgt ccg ggc gga 123202
Asp   Pro Gly Ala Leu Ala   Glu Ile Ala Ala Arg   Arg Pro Gly Gly
20940                 20945                 20950

gga   gac cga cgg ttt ggt   cca ccc agc gga gtg   gag gcg ctg cga 123247
Gly   Asp Arg Arg Phe Gly   Pro Pro Ser Gly Val   Glu Ala Leu Arg
20955                 20960                 20965

cgg   agg tgc gcc tgg atg   cgg cag atc cca gac   ccg gag gat gtg 123292
Arg   Arg Cys Ala Trp Met   Arg Gln Ile Pro Asp   Pro Glu Asp Val
20970                 20975                 20980

agg   ctt ctg atc atc tac   gat ccg ttg ccc gga   gag gac atc aac 123337
Arg   Leu Leu Ile Ile Tyr   Asp Pro Leu Pro Gly   Glu Asp Ile Asn
20985                 20990                 20995

ggc   ccc ctc gag agc acc   ctc gcg aca gat ccg   gga ccg tca tgg 123382
Gly   Pro Leu Glu Ser Thr   Leu Ala Thr Asp Pro   Gly Pro Ser Trp
21000                 21005                 21010

agt   cca tcc cga ggg gga   ctg tct gtg gtc ctg   gca gcc ctg agt 123427
Ser   Pro Ser Arg Gly Gly   Leu Ser Val Val Leu   Ala Ala Leu Ser
21015                 21020                 21025

aac   cgg ttg tgc ctg ccg   agc act cat gcc tgg   gcc ggg aac tgg 123472
Asn   Arg Leu Cys Leu Pro   Ser Thr His Ala Trp   Ala Gly Asn Trp
21030                 21035                 21040

acc   ggc ccg ccg gac gtg   tcc gct ttg aac gcc   cgg ggc gtt tta 123517
Thr   Gly Pro Pro Asp Val   Ser Ala Leu Asn Ala   Arg Gly Val Leu
21045                 21050                 21055

tta   ctg tcg acc cga gac   ctg gcc ttt gcc ggg   gcc gtc gag tat 123562
Leu   Leu Ser Thr Arg Asp   Leu Ala Phe Ala Gly   Ala Val Glu Tyr
21060                 21065                 21070

cta   ggc tcg cgg ttg gcc   tct gcc cgg cgc cgg   ttg ctg gtg ttg 123607
Leu   Gly Ser Arg Leu Ala   Ser Ala Arg Arg Arg   Leu Leu Val Leu
21075                 21080                 21085

gac   gcg gtg gcc ctc gag   agg tgg ccc agg gat   gga ccc gct ttg 123652
Asp   Ala Val Ala Leu Glu   Arg Trp Pro Arg Asp   Gly Pro Ala Leu
21090                 21095                 21100
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tct   cag tat cac gtg tac   gtc cgg gcc ccg gcg   cga ccg gac gcc 123697
Ser   Gln Tyr His Val Tyr   Val Arg Ala Pro Ala   Arg Pro Asp Ala
21105                 21110                 21115

cag   gcc gtc gtc cga tgg   cca gac tcg gcg gtc   aca gaa gga ctc 123742
Gln   Ala Val Val Arg Trp   Pro Asp Ser Ala Val   Thr Glu Gly Leu
21120                 21125                 21130

gcc   cgg gcc gtg ttt gca   tcg tcg cgc acc ttt   ggg cca gcg agt 123787
Ala   Arg Ala Val Phe Ala   Ser Ser Arg Thr Phe   Gly Pro Ala Ser
21135                 21140                 21145

ttt   gct cgt atc gag act   gcg ttt gcc aac ctg   tac ccg ggc gaa 123832
Phe   Ala Arg Ile Glu Thr   Ala Phe Ala Asn Leu   Tyr Pro Gly Glu
21150                 21155                 21160

caa   ccc ctg tgt ttg tgc   cgc ggt ggg aac gtc   gca tac acc gtg 123877
Gln   Pro Leu Cys Leu Cys   Arg Gly Gly Asn Val   Ala Tyr Thr Val
21165                 21170                 21175

tgt   acc cgc gcg ggc ccc   aag acc cgc gtc ccc   ctg tcg ccc cgt 123922
Cys   Thr Arg Ala Gly Pro   Lys Thr Arg Val Pro   Leu Ser Pro Arg
21180                 21185                 21190

gaa   tac cgg cag tac gtg   ctg ccg ggt ttt gac   ggt tgc aag gac 123967
Glu   Tyr Arg Gln Tyr Val   Leu Pro Gly Phe Asp   Gly Cys Lys Asp
21195                 21200                 21205

ctc   gcg cga cag tct cgg   ggt ctg ggg ctc ggg   gca gcc gac ttt 124012
Leu   Ala Arg Gln Ser Arg   Gly Leu Gly Leu Gly   Ala Ala Asp Phe
21210                 21215                 21220

gtg   gac gag gcg gca cat   agc cac cgc gca gca   aac cga tgg ggc 124057
Val   Asp Glu Ala Ala His   Ser His Arg Ala Ala   Asn Arg Trp Gly
21225                 21230                 21235

ctg   ggt gcc gcg ctt cga   ccc gtc ttc ctt ccc   gag gga cgg aga 124102
Leu   Gly Ala Ala Leu Arg   Pro Val Phe Leu Pro   Glu Gly Arg Arg
21240                 21245                 21250

ccg   ggg gcc gcc ggg ccg   gag gcc ggc gac gta   ccc acc tgg gcg 124147
Pro   Gly Ala Ala Gly Pro   Glu Ala Gly Asp Val   Pro Thr Trp Ala
21255                 21260                 21265

agg   gtg ttt tgc cgc cac   gcc ctg ctg gaa ccc   gac cct gcc gca 124192
Arg   Val Phe Cys Arg His   Ala Leu Leu Glu Pro   Asp Pro Ala Ala
21270                 21275                 21280

gaa   cca ctc gtg ctt cca   ccc gtg gcc ggt cgg   tcg gtg gcg ctg 124237
Glu   Pro Leu Val Leu Pro   Pro Val Ala Gly Arg   Ser Val Ala Leu
21285                 21290                 21295

tat   gcg tcg gcg gac gag   gct cgg aat gcc ctc   ccc ccg att ccc 124282
Tyr   Ala Ser Ala Asp Glu   Ala Arg Asn Ala Leu   Pro Pro Ile Pro
21300                 21305                 21310

aga   gta atg tgg ccg ccc   ggt ttt ggg gcc gcg   gag acg gtg ttg 124327
Arg   Val Met Trp Pro Pro   Gly Phe Gly Ala Ala   Glu Thr Val Leu
21315                 21320                 21325

gag   ggg agc gac gga aca   cgg ttc gtg ttc gga   cac cac ggg ggc 124372
Glu   Gly Ser Asp Gly Thr   Arg Phe Val Phe Gly   His His Gly Gly
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21330   21335   21340

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tcg  gaa cgg ccg tca gaa   acc cag gcg ggg cga   cag cgg cgc acc 124417
Ser  Glu Arg Pro Ser Glu   Thr Gln Ala Gly Arg   Gln Arg Arg Thr
21345                21350                21355

gca  gac gac aga gaa cac   gct ttg gag ctg gac   gat tgg gag gtg 124462
Ala  Asp Asp Arg Glu His   Ala Leu Glu Leu Asp   Asp Trp Glu Val
21360                21365                21370

ggg  tgt gaa gac gcg tgg   gac agc gag gag ggg   ggc ggg gac gac 124507
Gly  Cys Glu Asp Ala Trp   Asp Ser Glu Glu Gly   Gly Gly Asp Asp
21375                21380                21385

ggg  gac gca ccg ggg tca   tcc ttt ggg gtg agc   atc gtg tcg gtg 124552
Gly  Asp Ala Pro Gly Ser   Ser Phe Gly Val Ser   Ile Val Ser Val
21390                21395                21400

gcc  ccg ggt gtg ctg cga   gac cgc cgg gtg ggt   ttg cgc ccg gcg 124597
Ala  Pro Gly Val Leu Arg   Asp Arg Arg Val Gly   Leu Arg Pro Ala
21405                21410                21415

gtc  aag gtg gag ctg ttg   tcc tcg tcc tcg tcc   tcc gag gac gag 124642
Val  Lys Val Glu Leu Leu   Ser Ser Ser Ser Ser   Ser Glu Asp Glu
21420                21425                21430

gac  gat gtg tgg gga ggg   cgc ggg ggg agg agc   ccc ccg cag agt 124687
Asp  Asp Val Trp Gly Gly   Arg Gly Gly Arg Ser   Pro Pro Gln Ser
21435                21440                21445

cgg  ggg tga cggagtcccc tccttttctc gtgagcgcca ctggcgcgcg        124736
Arg  Gly
21450

gactgtttgt tgttaataaa agcggaacgg tttttatgaa aaaagtgtct gtctgtctgt 124796

gcgggcgggc gacgggcggg ctggtcggac ccccccccga aaataacccc cccccggttt 124856

ctgggcgccc ggcggacccc gggagagg                                   124884
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<210>  9
<211>  238
<212>  PRT
<213>  Varicella zoster

<400>  9

Met His Val Ile Ser Glu Thr Leu Ala Tyr Gly His Val Pro Ala Phe
1               5                   10                  15


Ile Met Gly Ser Thr Leu Val Arg Pro Ser Leu Asn Ala Thr Ala Glu
            20                  25                  30


Glu Asn Pro Ala Ser Glu Thr Arg Cys Leu Leu Arg Val Leu Ala Gly
        35                  40                  45


Arg Thr Val Asp Leu Pro Gly Gly Gly Thr Leu His Ile Thr Cys Thr
    50                  55                  60
```

```
Lys Thr Tyr Val Ile Ile Gly Lys Tyr Ser Lys Pro Gly Glu Arg Leu
65              70              75              80

Ser Leu Ala Arg Leu Ile Gly Arg Ala Met Thr Pro Gly Gly Ala Arg
            85              90              95

Thr Phe Ile Ile Leu Ala Met Lys Glu Lys Arg Ser Thr Thr Leu Gly
            100             105             110

Tyr Glu Cys Gly Thr Gly Leu His Leu Leu Ala Pro Ser Met Gly Thr
        115             120             125

Phe Leu Arg Thr His Gly Leu Ser Asn Arg Asp Leu Cys Leu Trp Arg
    130             135             140

Gly Asn Ile Tyr Asp Met His Met Gln Arg Leu Met Phe Trp Glu Asn
145             150             155             160

Ile Ala Gln Asn Thr Thr Glu Thr Pro Cys Ile Thr Ser Thr Leu Thr
            165             170             175

Cys Asn Leu Thr Glu Asp Ser Gly Glu Ala Ala Leu Thr Thr Ser Asp
            180             185             190

Arg Pro Thr Leu Pro Thr Leu Thr Ala Gln Gly Arg Pro Thr Val Ser
        195             200             205

Asn Ile Arg Gly Ile Leu Lys Gly Ser Pro Arg Gln Gln Pro Val Cys
    210             215             220

His Arg Val Arg Phe Ala Glu Pro Thr Glu Gly Val Leu Met
225             230             235
```

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<210>   10
<211>   259
<212>   PRT
<213>   Varicella zoster

<400>   10
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Met Gln Thr Val Cys Ala Ser Leu Cys Gly Tyr Ala Arg Ile Pro Thr
1               5               10              15

Glu Glu Pro Ser Tyr Glu Glu Val Arg Val Asn Thr His Pro Gln Gly
            20              25              30

Ala Ala Leu Leu Arg Leu Gln Glu Ala Leu Thr Ala Val Asn Gly Leu
        35              40              45
```

Leu Pro Ala Pro Leu Thr Leu Glu Asp Val Val Ala Ser Ala Asp Asn
    50   55   60

Thr Arg Arg Leu Val Arg Ala Gln Ala Leu Ala Arg Thr Tyr Ala Ala
65   70   75   80

Cys Ser Arg Asn Ile Glu Cys Leu Lys Gln His His Phe Thr Glu Asp
                85   90   95

Asn Pro Gly Leu Asn Ala Val Val Arg Ser His Met Glu Asn Ser Lys
            100   105   110

Arg Leu Ala Asp Met Cys Leu Ala Ala Ile Thr His Leu Tyr Leu Ser
        115   120   125

Val Gly Ala Val Asp Val Thr Thr Asp Asp Ile Val Asp Gln Thr Leu
    130   135   140

Arg Met Thr Ala Glu Ser Glu Val Val Met Ser Asp Val Val Leu Leu
145   150   155   160

Glu Lys Thr Leu Gly Val Val Ala Lys Pro Gln Ala Ser Phe Asp Val
            165   170   175

Ser His Asn His Glu Leu Ser Ile Ala Lys Gly Glu Asn Val Gly Leu
        180   185   190

Lys Thr Ser Pro Ile Lys Ser Glu Ala Thr Gln Leu Ser Glu Ile Lys
        195   200   205

Pro Pro Leu Ile Glu Val Ser Asp Asn Asn Thr Ser Asn Leu Thr Lys
    210   215   220

Lys Thr Tyr Pro Thr Glu Thr Leu Gln Pro Val Leu Thr Pro Lys Gln
225   230   235   240

Thr Gln Asp Val Gln Arg Thr Thr Pro Ala Ile Lys Lys Ser His Val
            245   250   255

Met Leu Val

<210>   11
<211>   87
<212>   PRT
<213>   Varicella zoster

<400>   11

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Met Gly Ser Ile Thr Ala Ser Phe Ile Leu Ile Thr Met Gln Ile Leu
1               5                   10                  15

Phe Phe Cys Glu Asp Ser Ser Gly Glu Pro Asn Phe Ala Glu Arg Asn
                20              25                  30

Phe Trp His Ala Ser Cys Ser Ala Arg Gly Val Tyr Ile Asp Gly Ser
            35              40              45

Met Ile Thr Thr Leu Phe Phe Tyr Ala Ser Leu Leu Gly Val Cys Val
        50              55              60

Ala Leu Ile Ser Leu Ala Tyr His Ala Cys Phe Arg Leu Phe Thr Arg
65              70              75                  80

Ser Val Leu Arg Ser Thr Trp
                85
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<210> 12
<211> 302
<212> PRT
<213> Varicella zoster

<400> 12

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Met Ala Ser Ser Asp Gly Asp Arg Leu Cys Arg Ser Asn Ala Val Arg
1               5                   10                  15

Arg Lys Thr Thr Pro Ser Tyr Ser Gly Gln Tyr Arg Thr Ala Arg Arg
                20              25                  30

Ser Val Val Val Gly Pro Pro Asp Asp Ser Asp Asp Ser Leu Gly Tyr
            35              40                  45

Ile Thr Thr Val Gly Ala Asp Ser Pro Ser Pro Val Tyr Ala Asp Leu
        50              55              60

Tyr Phe Glu His Lys Asn Thr Thr Pro Arg Val His Gln Pro Asn Asp
65              70              75                  80

Ser Ser Gly Ser Glu Asp Asp Phe Glu Asp Ile Asp Glu Val Val Ala
                85              90                  95

Ala Phe Arg Glu Ala Arg Leu Arg His Glu Leu Val Glu Asp Ala Val
            100             105                 110

Tyr Glu Asn Pro Leu Ser Val Glu Lys Pro Ser Arg Ser Phe Thr Lys
            115             120             125
```

Asn Ala Ala Val Lys Pro Lys Leu Glu Asp Ser Pro Lys Arg Ala Pro
    130   135   140

Pro Gly Ala Gly Ala Ile Ala Ser Gly Arg Pro Ile Ser Phe Ser Thr
145   150   155   160

Ala Pro Lys Thr Ala Thr Ser Ser Trp Cys Gly Pro Thr Pro Ser Tyr
            165   170   175

Asn Lys Arg Val Phe Cys Glu Ala Val Arg Arg Val Ala Ala Met Gln
        180   185   190

Ala Gln Lys Ala Ala Glu Ala Ala Trp Asn Ser Asn Pro Pro Arg Asn
        195   200   205

Asn Ala Glu Leu Asp Arg Leu Leu Thr Gly Ala Val Ile Arg Ile Thr
    210   215   220

Val His Glu Gly Leu Asn Leu Ile Gln Ala Ala Asn Glu Ala Asp Leu
225   230   235   240

Gly Glu Gly Ala Ser Val Ser Lys Arg Gly His Asn Arg Lys Thr Gly
            245   250   255

Asp Leu Gln Gly Gly Met Gly Asn Glu Pro Met Tyr Ala Gln Val Arg
        260   265   270

Lys Pro Lys Ser Arg Thr Asp Thr Gln Thr Thr Gly Arg Ile Thr Asn
        275   280   285

Arg Ser Arg Ala Arg Ser Ala Ser Arg Thr Asp Thr Arg Lys
    290   295   300

<210>   13
<211>   410
<212>   PRT
<213>   Varicella zoster

<400>   13

Met Glu Cys Asn Leu Gly Thr Glu His Pro Ser Thr Asp Thr Trp Asn
1   5   10   15

Arg Ser Lys Thr Glu Gln Ala Val Val Asp Ala Phe Asp Glu Ser Leu
            20   25   30

Phe Gly Asp Val Ala Ser Asp Ile Gly Phe Glu Thr Ser Leu Tyr Ser
        35   40   45

His Ala Val Lys Thr Ala Pro Ser Pro Pro Trp Val Ala Ser Pro Lys
    50   55   60

Ile Leu Tyr Gln Gln Leu Ile Arg Asp Leu Asp Phe Ser Glu Gly Pro
65   70   75   80

Arg Leu Leu Ser Cys Leu Glu Thr Trp Asn Glu Asp Leu Phe Ser Cys
                85   90   95

Phe Pro Ile Asn Glu Asp Leu Tyr Ser Asp Met Met Val Leu Ser Pro
                100   105   110

Asp Pro Asp Asp Val Ile Ser Thr Val Ser Thr Lys Asp His Val Glu
        115   120   125

Met Phe Asn Leu Thr Thr Arg Gly Ser Val Arg Leu Pro Ser Pro Pro
        130   135   140

Lys Gln Pro Thr Gly Leu Pro Ala Tyr Val Gln Glu Val Gln Asp Ser
145   150   155   160

Phe Thr Val Glu Leu Arg Ala Arg Glu Glu Ala Tyr Thr Lys Leu Leu
                165   170   175

Val Thr Tyr Cys Lys Ser Ile Ile Arg Tyr Leu Gln Gly Thr Ala Lys
                180   185   190

Arg Thr Thr Ile Gly Leu Asn Ile Gln Asn Pro Asp Gln Lys Ala Tyr
        195   200   205

Thr Gln Leu Arg Gln Ser Ile Leu Leu Arg Tyr Tyr Arg Glu Val Ala
210   215   220

Ser Leu Ala Arg Leu Leu Tyr Leu His Leu Tyr Leu Thr Val Thr Arg
225   230   235   240

Glu Phe Ser Trp Arg Leu Tyr Ala Ser Gln Ser Ala His Pro Asp Val
                245   250   255

Phe Ala Ala Leu Lys Phe Thr Trp Thr Glu Arg Arg Gln Phe Thr Cys
                260   265   270

Ala Phe His Pro Val Leu Cys Asn His Gly Ile Val Leu Leu Glu Gly
        275   280   285

Lys Pro Leu Thr Ala Ser Ala Leu Arg Glu Ile Asn Tyr Arg Arg Arg
290   295   300
Page 149

Glu Leu Gly Leu Pro Leu Val Arg Cys Gly Leu Val Glu Glu Asn Lys
305   310   315   320

Ser Pro Leu Val Gln Gln Pro Ser Phe Ser Val His Leu Pro Arg Ser
                325   330   335

Val Gly Phe Leu Thr His His Ile Lys Arg Lys Leu Asp Ala Tyr Ala
            340   345   350

Val Lys His Pro Gln Glu Pro Arg His Val Arg Ala Asp His Pro Tyr
        355   360   365

Ala Lys Val Val Glu Asn Arg Asn Tyr Gly Ser Ser Ile Glu Ala Met
    370   375   380

Ile Leu Ala Pro Pro Ser Pro Ser Glu Ile Leu Pro Gly Asp Pro Pro
385   390   395   400

Arg Pro Pro Thr Cys Gly Phe Leu Thr Arg
                405   410

<210>   14
<211>   819
<212>   PRT
<213>   Varicella zoster

<400>   14

Met Gln Ser Gly His Tyr Asn Arg Arg Gln Ser Arg Arg Gln Arg Ile
1   5   10   15

Ser Ser Asn Thr Thr Asp Ser Pro Arg His Thr His Gly Thr Arg Tyr
            20   25   30

Arg Ser Thr Asn Trp Tyr Thr His Pro Pro Gln Ile Leu Ser Asn Ser
        35   40   45

Glu Thr Leu Val Ala Val Gln Glu Leu Leu Asn Ser Glu Met Asp Gln
    50   55   60

Asp Ser Ser Ser Asp Ala Ser Asp Asp Phe Pro Gly Tyr Ala Leu His
65   70   75   80

His Ser Thr Tyr Asn Gly Ser Glu Gln Asn Thr Ser Thr Ser Arg His
                85   90   95

Glu Asn Arg Ile Phe Lys Leu Thr Glu Arg Glu Ala Asn Glu Glu Ile
            100   105   110

Asn Ile Asn Thr Asp Ala Ile Asp Asp Glu Gly Glu Ala Glu Glu Gly
        115   120   125

Glu Ala Glu Glu Asp Ala Ile Asp Asp Glu Gly Glu Ala Glu Glu Gly
    130   135   140

Glu Ala Glu Glu Asp Ala Ile Asp Asp Glu Gly Glu Ala Glu Glu Gly
145   150   155   160

Glu Ala Glu Glu Asp Ala Ile Asp Asp Glu Gly Glu Ala Glu Glu Gly
            165   170   175

Glu Ala Glu Glu Gly Glu Ala Glu Glu Gly Glu Ala Glu Glu Asp Ala
        180   185   190

Ile Asp Asp Glu Gly Glu Ala Glu Glu Asp Ala Ala Glu Glu Asp Ala
        195   200   205

Ile Asp Asp Glu Gly Glu Ala Glu Glu Asp Tyr Phe Ser Val Ser Gln
        210   215   220

Val Cys Ser Arg Asp Ala Asp Glu Val Tyr Phe Thr Leu Asp Pro Glu
225   230   235   240

Ile Ser Tyr Ser Thr Asp Leu Arg Ile Ala Lys Val Met Glu Pro Ala
            245   250   255

Val Ser Lys Glu Leu Asn Val Ser Lys Arg Cys Val Glu Pro Val Thr
            260   265   270

Leu Thr Gly Ser Met Leu Ala His Asn Gly Phe Asp Glu Ser Trp Phe
        275   280   285

Ala Met Arg Glu Cys Thr Arg Arg Glu Tyr Ile Thr Val Gln Gly Leu
    290   295   300

Tyr Asp Pro Ile His Leu Arg Tyr Gln Phe Asp Thr Ser Arg Met Thr
305   310   315   320

Pro Pro Gln Ile Leu Arg Thr Ile Pro Ala Leu Pro Asn Met Thr Leu
            325   330   335

Gly Glu Leu Leu Leu Ile Phe Pro Ile Glu Phe Met Ala Gln Pro Ile
            340   345   350

Ser Ile Glu Arg Ile Leu Val Glu Asp Val Phe Leu Asp Arg Arg Ala
                        Page 151

                355   360   365

Ser Ser Lys Thr His Lys Tyr Gly Pro Arg Trp Asn Ser Val Tyr Ala
370   375   380

Leu Pro Tyr Asn Ala Gly Lys Met Tyr Val Gln His Ile Pro Gly Phe
385   390   395   400

Tyr Asp Val Ser Leu Arg Ala Val Gly Gln Gly Thr Ala Ile Trp His
                    405   410   415

His Met Ile Leu Ser Thr Ala Ala Cys Ala Ile Ser Asn Arg Ile Ser
                    420   425   430

His Gly Asp Gly Leu Gly Phe Leu Leu Asp Ala Ala Ile Arg Ile Ser
                    435   440   445

Ala Asn Cys Ile Phe Leu Gly Arg Asn Asp Asn Phe Gly Val Gly Asp
                    450   455   460

Pro Cys Trp Leu Glu Asp His Leu Ala Gly Leu Pro Arg Glu Ala Val
465   470   475   480

Pro Asp Val Leu Gln Val Thr Gln Leu Val Leu Pro Asn Arg Gly Pro
                    485   490   495

Thr Val Ala Ile Met Arg Gly Phe Phe Gly Ala Leu Ala Tyr Trp Pro
                    500   505   510

Glu Leu Arg Ile Ala Ile Ser Glu Pro Ser Thr Ser Leu Val Arg Tyr
                    515   520   525

Ala Thr Gly His Met Glu Leu Ala Glu Trp Phe Leu Phe Ser Arg Thr
                    530   535   540

His Ser Leu Lys Pro Gln Phe Thr Pro Thr Glu Arg Glu Met Leu Ala
545   550   555   560

Ser Phe Phe Thr Leu Tyr Val Thr Leu Gly Gly Gly Met Leu Asn Trp
                    565   570   575

Ile Cys Arg Ala Thr Ala Met Tyr Leu Ala Ala Pro Tyr His Ser Arg
                    580   585   590

Ser Ala Tyr Ile Ala Val Cys Glu Ser Leu Pro Tyr Tyr Ile Pro
                    595   600   605

Val Asn Ser Asp Leu Leu Cys Asp Leu Glu Val Leu Leu Leu Gly Glu
   610   615   620

Val Asp Leu Pro Thr Val Cys Glu Ser Tyr Ala Thr Ile Ala His Glu
625   630   635   640

Leu Thr Gly Tyr Glu Ala Val Arg Thr Ala Ala Thr Asn Phe Met Ile
               645   650   655

Glu Phe Ala Asp Cys Tyr Lys Glu Ser Glu Thr Asp Leu Met Val Ser
           660   665   670

Ala Tyr Leu Gly Ala Val Leu Leu Leu Gln Arg Val Leu Gly His Ala
       675   680   685

Asn Leu Leu Leu Leu Leu Leu Ser Gly Ala Ala Leu Tyr Gly Gly Cys
   690   695   700

Ser Ile Tyr Ile Pro Arg Gly Ile Leu Asp Ala Tyr Asn Thr Leu Met
705   710   715   720

Leu Ala Ala Ser Pro Leu Tyr Ala His Gln Thr Leu Thr Ser Phe Trp
               725   730   735

Lys Asp Arg Asp Asp Ala Met Gln Thr Leu Gly Ile Arg Pro Thr Thr
           740   745   750

Asp Val Leu Pro Lys Glu Gln Asp Arg Ile Val Gln Ala Ser Pro Ile
       755   760   765

Glu Met Asn Phe Arg Phe Val Gly Leu Glu Thr Ile Tyr Pro Arg Glu
   770   775   780

Gln Pro Ile Pro Ser Val Asp Leu Ala Glu Asn Leu Met Gln Tyr Arg
785   790   795   800

Asn Glu Ile Leu Gly Leu Asp Trp Lys Ser Val Ala Met His Leu Leu
               805   810   815

Arg Lys Tyr

<210> 15
<211> 661
<212> PRT
<213> Varicella zoster

<400> 15

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Met Phe Ser Arg Phe Ala Arg Ser Phe Ser Ser Asp Asp Arg Thr Arg
1               5                   10                  15

Lys Ser Tyr Asp Gly Ser Tyr Gln Ser Phe Asn Ala Gly Glu Arg Asp
            20                  25                  30

Leu Pro Thr Pro Thr Arg Asp Trp Cys Ser Ile Ser Gln Arg Ile Thr
        35                  40                  45

Ser Glu Arg Val Arg Asp Gly Cys Leu Ile Pro Thr Pro Gly Glu Ala
        50                  55                  60

Leu Glu Thr Ala Val Lys Ala Leu Ser Glu Lys Thr Asp Ser Leu Thr
65                  70                  75                  80

Ser Pro Val Leu Gln Ser Thr Glu Arg His Ser Val Leu Leu Gly Leu
                85                  90                  95

His His Asn Asn Val Pro Glu Ser Leu Val Val Ser Cys Met Ser Asn
            100                 105                 110

Asp Val His Asp Gly Phe Met Gln Arg Tyr Met Glu Thr Ile Gln Arg
            115                 120                 125

Cys Leu Asp Asp Leu Lys Leu Ser Gly Asp Gly Leu Trp Trp Val Tyr
    130                 135                 140

Glu Asn Thr Tyr Trp Gln Tyr Leu Lys Tyr Thr Thr Gly Ala Glu Val
145                 150                 155                 160

Pro Val Thr Ser Glu Lys Val Asn Lys Lys Ser Lys Ser Thr Val Leu
                165                 170                 175

Leu Phe Ser Ser Val Val Ala Asn Lys Pro Ile Ser Arg His Pro Phe
            180                 185                 190

Lys Ser Lys Val Ile Asn Ser Asp Tyr Arg Gly Ile Cys Gln Glu Leu
            195                 200                 205

Arg Glu Ala Leu Gly Ala Val Gln Lys Tyr Met Tyr Phe Met Arg Pro
    210                 215                 220

Asp Asp Pro Thr Asn Pro Ser Pro Asp Thr Arg Ile Arg Val Gln Glu
225                 230                 235                 240

Ile Ala Ala Tyr Thr Ala Thr Gly Tyr Gly Trp Met Leu Trp Phe Leu
            245                 250                 255
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Asp Val Val Asp Ala Arg Val Cys Arg His Leu Lys Leu Gln Phe Arg
        260   265   270

Arg Ile Arg Gly Pro Arg Ala Ser Val Ile Pro Asp Asp Leu Leu Arg
        275   280   285

Arg His Leu Lys Thr Gly Pro Ala Val Ser Ala Gly Thr Gly Val Ala
        290   295   300

Phe Ile Leu Ala Ala Thr Thr Ala Ser Ala Leu Thr Ala Leu Leu Arg
305   310   315   320

Ile Ser Val Leu Trp Arg Lys Glu Glu Trp Arg Asp Gly Leu Asn Gly
                325   330   335

Thr Ala Ala Ala Ile Val Ala Ala Val Glu Leu Ile Thr Leu Leu His
        340   345   350

His His Phe Gln Tyr Leu Ile Asn Met Met Leu Ile Gly Tyr Ala Cys
        355   360   365

Trp Gly Asp Gly Gly Leu Asn Asp Pro Tyr Ile Leu Lys Ala Leu Arg
        370   375   380

Ala Gln Gly Arg Phe Leu Tyr Phe Ala Gly Gln Leu Val Arg Thr Met
385   390   395   400

Ser Thr His Ser Trp Val Val Leu Glu Thr Ser Thr His Met Trp Phe
                405   410   415

Ser Arg Ala Val Ala Gln Ser Ile Leu Ala His Gly Gly Lys Pro Thr
        420   425   430

Lys Tyr Tyr Ala Gln Val Leu Ala Ala Ser Lys Arg Tyr Thr Pro Leu
        435   440   445

His Leu Arg Arg Ile Ser Glu Pro Ser Ser Val Ser Asp Gln Pro Tyr
        450   455   460

Ile Arg Phe Asn Arg Leu Gly Ser Pro Ile Gly Thr Gly Ile Gly Asn
465   470   475   480

Leu Glu Cys Val Cys Leu Thr Gly Asn Tyr Leu Ser Asp Asp Val Asn
                485   490   495

Ala Ser Ser His Val Ile Asn Thr Glu Ala Pro Leu Asn Ser Ile Ala
        500   505   510

Pro Asp Thr Asn Arg Gln Arg Thr Ser Arg Val Leu Val Arg Pro Asp
   515   520   525

Thr Gly Leu Asp Val Thr Val Arg Lys Asn His Cys Leu Asp Ile Gly
   530   535   540

His Thr Asp Gly Ser Pro Val Asp Pro Thr Tyr Pro Asp His Tyr Thr
545   550   555   560

Arg Ile Lys Ala Glu Tyr Glu Gly Pro Val Arg Asp Glu Ser Asn Thr
      565   570   575

Met Phe Asp Gln Arg Ser Asp Leu Arg His Ile Glu Thr Gln Ala Ser
      580   585   590

Leu Asn Asp His Val Tyr Glu Asn Ile Pro Pro Lys Glu Val Gly Phe
   595   600   605

Asn Ser Ser Ser Asp Leu Asp Val Asp Ser Leu Asn Gly Tyr Thr Ser
   610   615   620

Gly Asp Met His Thr Asp Asp Asp Leu Ser Pro Asp Phe Ile Pro Asn
625   630   635   640

Asp Val Pro Val Arg Cys Lys Thr Thr Val Thr Phe Arg Lys Asn Thr
      645   650   655

Pro Lys Ser His His
   660

<210> 16
<211> 301
<212> PRT
<213> Varicella zoster

<400> 16

Met Gly Asp Leu Ser Cys Trp Thr Lys Val Pro Gly Phe Thr Leu Thr
1   5   10   15

Gly Glu Leu Gln Tyr Leu Lys Gln Val Asp Asp Ile Leu Arg Tyr Gly
   20   25   30

Val Arg Lys Arg Asp Arg Thr Gly Ile Gly Thr Leu Ser Leu Phe Gly
   35   40   45

Met Gln Ala Arg Tyr Asn Leu Arg Asn Glu Phe Pro Leu Leu Thr Thr
   50   55   60

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Lys Arg Val Phe Trp Arg Ala Val Val Glu Glu Leu Leu Trp Phe Ile
65   70   75   80

Arg Gly Ser Thr Asp Ser Lys Glu Leu Ala Ala Lys Asp Ile His Ile
                85   90   95

Trp Asp Ile Tyr Gly Ser Ser Lys Phe Leu Asn Arg Asn Gly Phe His
                100   105   110

Lys Arg His Thr Gly Asp Leu Gly Pro Ile Tyr Gly Phe Gln Trp Arg
        115   120   125

His Phe Gly Ala Glu Tyr Lys Asp Cys Gln Ser Asn Tyr Leu Gln Gln
    130   135   140

Gly Ile Asp Gln Leu Gln Thr Val Ile Asp Thr Ile Lys Thr Asn Pro
145   150   155   160

Glu Ser Arg Arg Met Ile Ile Ser Ser Trp Asn Pro Lys Asp Ile Pro
                165   170   175

Leu Met Val Leu Pro Pro Cys His Thr Leu Cys Gln Phe Tyr Val Ala
                180   185   190

Asn Gly Glu Leu Ser Cys Gln Val Tyr Gln Arg Ser Gly Asp Met Gly
        195   200   205

Leu Gly Val Pro Phe Asn Ile Ala Gly Tyr Ala Leu Leu Thr Tyr Ile
    210   215   220

Val Ala His Val Thr Gly Leu Lys Thr Gly Asp Leu Ile His Thr Met
225   230   235   240

Gly Asp Ala His Ile Tyr Leu Asn His Ile Asp Ala Leu Lys Val Gln
                245   250   255

Leu Ala Arg Ser Pro Lys Pro Phe Pro Cys Leu Lys Ile Ile Arg Asn
        260   265   270

Val Thr Asp Ile Asn Asp Phe Lys Trp Asp Asp Phe Gln Leu Asp Gly
        275   280   285

Tyr Asn Pro His Pro Pro Leu Lys Met Glu Met Ala Leu
    290   295   300

<210>   17

<211> 455
<212> PRT
<213> Varicella zoster

<400> 17

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Met Gly Leu Phe Gly Leu Thr Arg Phe Ile His Glu His Lys Leu Val
1               5                   10                  15

Lys Pro Ser Ile Ile Ser Thr Pro Pro Gly Val Leu Thr Pro Val Ala
                20                  25                  30

Val Asp Val Trp Asn Val Met Tyr Thr Leu Leu Glu Arg Leu Tyr Pro
            35                  40                  45

Val Gly Lys Arg Glu Asn Leu His Gly Pro Ser Val Thr Ile His Cys
        50                  55                  60

Leu Gly Val Leu Leu Arg Leu Leu Thr Gln Arg Ser Tyr Tyr Pro Ile
65                  70                  75                  80

Phe Val Leu Glu Arg Cys Thr Asp Gly Pro Leu Ser Arg Gly Ala Lys
                85                  90                  95

Ala Ile Met Ser Arg Ala Met Asn His Asp Glu Arg Gly Thr Ser Asp
                100                 105                 110

Leu Thr Arg Val Leu Leu Ser Ser Asn Thr Ser Cys Ser Ile Lys Tyr
            115                 120                 125

Asn Lys Thr Ser Glu Thr Tyr Asp Ser Val Phe Arg Asn Ser Ser Thr
        130                 135                 140

Ser Cys Ile Pro Ser Glu Glu Asn Lys Ser Gln Asp Met Phe Leu Asp
145                 150                 155                 160

Gly Cys Pro Arg Gln Thr Asp Lys Thr Ile Cys Leu Arg Asp Gln Asn
                165                 170                 175

Val Cys Ser Leu Thr Ser Thr Met Pro Ser Arg Gly His Pro Asn His
            180                 185                 190

Arg Leu Tyr His Lys Leu Cys Ala Ser Leu Ile Arg Trp Met Gly Tyr
            195                 200                 205

Ala Tyr Val Glu Ala Val Asp Ile Glu Ala Asp Glu Ala Cys Ala Asn
        210                 215                 220

Leu Phe His Thr Arg Thr Val Ala Leu Val Tyr Thr Thr Asp Thr Asp
```

225   230   235   240

Leu Leu Phe Met Gly Cys Asp Ile Leu Leu Asp Ala Ile Pro Met Phe
            245   250   255

Ala Pro Val Val Arg Cys Arg Asp Leu Leu Gln Tyr Leu Gly Ile Thr
            260   265   270

Tyr Pro Glu Phe Leu Val Ala Phe Val Arg Cys Gln Thr Asp Leu His
            275   280   285

Thr Ser Asp Asn Leu Lys Ser Val Gln Gln Val Ile Gln Asp Thr Gly
    290   295   300

Leu Lys Val Pro His Gln Met Asp Thr Ser Thr Arg Ser Pro Thr Tyr
305   310   315   320

Asp Ser Trp Arg His Gly Glu Val Phe Lys Ser Leu Thr Val Ala Thr
            325   330   335

Ser Gly Lys Thr Glu Asn Gly Val Ser Val Ser Lys Tyr Ala Ser Asn
            340   345   350

Arg Ser Glu Val Thr Val Asp Ala Ser Trp Ala Leu Asn Leu Leu Pro
            355   360   365

Pro Ser Ser Ser Pro Leu Asp Asn Leu Glu Arg Ala Phe Val Glu His
    370   375   380

Ile Ile Ala Val Val Thr Pro Leu Thr Arg Gly Arg Leu Lys Leu Met
385   390   395   400

Lys Arg Val Asn Ile Met Gln Asn Thr Ala Asp Pro Tyr Met Val Ile
            405   410   415

Asn Thr Leu Tyr His Asn Leu Lys Gly Glu Lys Met Ala Arg Gln Tyr
            420   425   430

Ala Arg Ile Phe Lys Gln Phe Ile Pro Thr Pro Leu Pro Leu Asn Thr
            435   440   445

Val Leu Thr Lys Tyr Trp Asn
    450   455

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Met Glu Glu Pro Ile Cys Tyr Asp Thr Gln Lys Leu Leu Asp Asp Leu
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Ser Asn Leu Lys Val Gln Glu Ala Asp Asn Glu Arg Pro Trp Ser Pro
            20   25   30

Glu Lys Thr Glu Ile Ala Arg Val Lys Val Val Lys Phe Leu Arg Ser
        35   40   45

Thr Gln Lys Ile Pro Ala Lys His Phe Ile Gln Ile Trp Glu Pro Leu
    50   55   60

His Ser Asn Ile Cys Phe Val Tyr Ser Asn Thr Phe Leu Ala Glu Ala
65   70   75   80

Ala Phe Thr Ala Glu Asn Leu Pro Gly Leu Leu Phe Trp Arg Leu Asp
                85   90   95

Leu Asp Trp Thr Ile Glu Glu Pro Gly Asn Ser Leu Lys Ile Leu Thr
            100   105   110

Gln Leu Ser Ser Val Val Gln Asp Ser Glu Thr Leu His Arg Leu Ser
        115   120   125

Ala Asn Lys Leu Arg Thr Ser Ser Lys Phe Gly Pro Val Ser Ile His
    130   135   140

Phe Ile Ile Thr Asp Trp Ile Asn Met Tyr Glu Val Ala Leu Lys Asp
145   150   155   160

Ala Thr Thr Ala Ile Glu Ser Pro Phe Thr His Ala Arg Ile Gly Met
                165   170   175

Leu Glu Ser Ala Ile Ala Ala Leu Thr Gln His Lys Phe Ala Ile Ile
            180   185   190

Tyr Asp Met Pro Phe Val Gln Glu Gly Ile Arg Val Leu Thr Gln Tyr
        195   200   205

Ala Gly Trp Leu Leu Pro Phe Asn Val Met Trp Asn Gln Ile Gln Asn
    210   215   220

Ser Ser Leu Thr Pro Leu Thr Arg Ala Leu Phe Ile Ile Cys Met Ile
225   230   235   240

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Asp Glu Tyr Leu Thr Glu Thr Pro Val His Ser Ile Ser Glu Leu Phe
            245             250                 255

Ala Asp Thr Val Asn Leu Ile Lys Asp Glu Ala Phe Val Ser Ile Glu
            260             265                 270

Glu Ala Val Thr Asn Pro Arg Thr Val His Glu Ser Arg Ile Ser Ser
            275             280                 285

Ala Leu Ala Tyr Arg Asp Pro Tyr Val Phe Glu Thr Ser Pro Gly Met
        290             295             300

Leu Ala Arg Arg Leu Arg Leu Asp Asn Gly Ile Trp Glu Ser Asn Leu
305             310             315                 320

Leu Ser Leu Ser Thr Pro Gly Ile His Ile Glu Ala Leu Leu His Leu
            325             330                 335

Leu Asn Ser Asp Pro Glu Ala Glu Thr Thr Ser Gly Ser Asn Val Ala
            340             345                 350

Glu His Thr Arg Gly Ile Trp Glu Lys Val Gln Ala Ser Thr Ser Pro
            355             360             365

Ser Met Leu Ile Ser Thr Leu Ala Glu Ser Gly Phe Thr Arg Phe Ser
    370             375             380

Cys Lys Leu Leu Arg Arg Phe Ile Ala His His Thr Leu Ala Gly Phe
385             390             395                 400

Ile His Gly Ser Val Val Ala Asp Glu His Ile Thr Asp Phe Gln Gln
            405             410                 415

Thr Leu Gly Cys Leu Ala Leu Val Gly Gly Leu Ala Tyr Gln Leu Val
            420             425             430

Glu Thr Tyr Ala Pro Thr Thr Glu Tyr Val Leu Thr Tyr Thr Arg Thr
        435             440             445

Val Asn Glu Thr Glu Lys Arg Tyr Glu Thr Leu Leu Pro Ala Leu Gly
    450             455             460

Leu Pro Pro Gly Gly Leu Gly Gln Ile Met Arg Arg Cys Phe Ala Pro
465             470             475                 480

Arg Pro Leu Ile Glu Ser Ile Gln Ala Thr Arg Val Ile Leu Leu Asn
            485             490                 495
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Glu Ile Ser His Ala Glu Ala Arg Glu Thr Thr Tyr Phe Lys Gln Thr
            500             505             510

His Asn Gln Ser Ser Gly Ala Leu Leu Pro Gln Ala Gly Gln Ser Ala
            515             520             525

Val Arg Glu Ala Val Leu Thr Trp Phe Asp Leu Arg Met Asp Ser Arg
    530             535             540

Trp Gly Ile Thr Pro Pro Val Asp Val Gly Met Thr Pro Pro Ile Cys
545             550             555             560

Val Asp Pro Pro Ala Thr Gly Leu Glu Ala Val Met Ile Thr Glu Ala
                565             570             575

Leu Lys Ile Ala Tyr Pro Thr Glu Tyr Asn Arg Ser Ser Val Phe Val
            580             585             590

Glu Pro Ser Phe Val Pro Tyr Ile Ile Ala Thr Ser Thr Leu Asp Ala
        595             600             605

Leu Ser Ala Thr Ile Ala Leu Ser Phe Asp Thr Arg Gly Ile Gln Gln
    610             615             620

Ala Leu Ser Ile Leu Gln Trp Ala Arg Asp Tyr Gly Ser Gly Thr Val
625             630             635             640

Pro Asn Ala Asp Gly Tyr Arg Thr Lys Leu Ser Ala Leu Ile Thr Ile
                645             650             655

Leu Glu Pro Phe Thr Arg Thr His Pro Pro Val Leu Leu Pro Ser His
            660             665             670

Val Ser Thr Ile Asp Ser Leu Ile Cys Glu Leu His Arg Thr Val Gly
            675             680             685

Ile Ala Val Asp Leu Leu Pro Gln His Val Arg Pro Leu Val Pro Asp
    690             695             700

Arg Pro Ser Ile Thr Asn Ser Val Phe Leu Ala Thr Leu Tyr Tyr Asp
705             710             715             720

Glu Leu Tyr Gly Arg Trp Thr Arg Leu Asp Lys Thr Ser Gln Ala Leu
            725             730             735

Val Glu Asn Phe Thr Ser Asn Ala Leu Val Val Ser Arg Tyr Met Leu
            740             745             750
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Met Leu Gln Lys Phe Phe Ala Cys Arg Phe Tyr Pro Thr Pro Asp Leu
        755   760   765

Gln Ala Val Gly Ile Cys Asn Pro Lys Val Glu Arg Asp Glu Gln Phe
    770   775   780

Gly Val Trp Arg Leu Asn Asp Leu Ala Asp Ala Val Gly His Ile Val
785   790   795   800

Gly Thr Ile Gln Gly Ile Arg Thr Gln Met Arg Val Gly Ile Ser Ser
            805   810   815

Leu Arg Thr Ile Met Ala Asp Ala Ser Ser Ala Leu Arg Glu Cys Glu
            820   825   830

Asn Leu Met Thr Lys Thr Ser Thr Ser Ala Ile Gly Pro Leu Phe Ser
        835   840   845

Thr Met Ala Ser Arg Tyr Ala Arg Phe Thr Gln Asp Gln Met Asp Ile
    850   855   860

Leu Met Arg Val Asp Lys Leu Thr Thr Gly Glu Asn Ile Pro Gly Leu
865   870   875   880

Ala Asn Val Glu Ile Phe Leu Asn Arg Trp Glu Arg Ile Ala Thr Ala
            885   890   895

Cys Arg His Ala Thr Ala Val Pro Ser Ala Glu Ser Ile Ala Thr Val
            900   905   910

Cys Asn Glu Leu Arg Arg Gly Leu Lys Asn Ile Gln Glu Asp Arg Val
        915   920   925

Asn Ala Pro Thr Ser Tyr Met Ser His Ala Arg Asn Leu Glu Asp His
    930   935   940

Lys Ala Ala Val Ser Phe Val Met Asp Ser Arg Gln Gln Phe Ile Val
945   950   955   960

Asp Ser Gly Pro Gln Met Gly Ala Val Leu Thr Ser Gln Cys Asn Ile
            965   970   975

Gly Thr Trp Glu Asn Val Asn Ala Thr Phe Leu His Asp Asn Val Lys
        980   985   990

Ile Thr Thr Thr Val Arg Asp Val Ile Ser Glu Ala Pro Thr Leu Ile
                                Page 163

Ile Gly Gln Arg Trp Leu Arg Pro Asp Glu Ile Leu Ser Asn Val
    1010   1015   1020

Asp Leu Arg Leu Gly Val Pro Gly Asn Thr Ser Gly Ser Asp Pro
    1025   1030   1035

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Met Asp Ile Ile Pro Pro Ile Ala Val Thr Val Ala Gly Val Gly Ser
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Arg Asn Gln Phe Asp Gly Ala Leu Gly Pro Ala Ser Gly Leu Ser Cys
                20   25   30

Leu Arg Thr Ser Leu Ser Phe Leu His Met Thr Tyr Ala His Gly Ile
            35   40   45

Asn Ala Thr Leu Ser Ser Asp Met Ile Asp Gly Cys Leu Gln Glu Gly
    50   55   60

Ala Ala Trp Thr Thr Asp Leu Ser Asn Met Gly Arg Gly Val Pro Asp
65   70   75   80

Met Cys Ala Leu Val Asp Leu Pro Asn Arg Ile Ser Tyr Ile Lys Leu
                85   90   95

Gly Asp Thr Thr Ser Thr Cys Cys Val Leu Ser Arg Ile Tyr Gly Asp
                100   105   110

Ser His Phe Phe Thr Val Pro Asp Glu Gly Phe Met Cys Thr Gln Ile
            115   120   125

Pro Ala Arg Ala Phe Phe Asp Asp Val Trp Met Gly Arg Glu Glu Ser
    130   135   140

Tyr Thr Ile Ile Thr Val Asp Ser Thr Gly Met Ala Ile Tyr Arg Gln
145   150   155   160

Gly Asn Ile Ser Phe Ile Phe Asp Pro His Gly His Gly Thr Ile Gly
                165   170   175

Gln Ala Val Val Val Arg Val Asn Thr Thr Asp Val Tyr Ser Tyr Ile
Page 164

Ala Ser Glu Tyr Thr His Arg Pro Asp Asn Val Glu Ser Gln Trp Ala
        195   200   205

Ala Ala Leu Val Phe Phe Val Thr Ala Asn Asp Gly Pro Val Ser Glu
    210   215   220

Glu Ala Leu Ser Ser Ala Val Thr Leu Ile Tyr Gly Ser Cys Asp Thr
225   230   235   240

Tyr Phe Thr Asp Glu Gln Tyr Cys Glu Lys Leu Val Thr Ala Gln His
            245   250   255

Pro Leu Leu Leu Ser Pro Pro Asn Ser Thr Thr Ile Val Leu Asn Lys
            260   265   270

Ser Ser Ile Val Pro Leu His Gln Asn Val Gly Glu Ser Val Ser Leu
        275   280   285

Glu Ala Thr Leu His Ser Thr Leu Thr Asn Thr Val Ala Leu Asp Pro
    290   295   300

Arg Cys Ser Tyr Ser Glu Val Asp Pro Trp His Ala Val Leu Glu Thr
305   310   315   320

Thr Ser Thr Gly Ser Gly Val Leu Asp Cys Arg Arg Arg Arg Arg Pro
            325   330   335

Ser Trp Thr Pro Pro Ser Ser Glu Glu Asn Leu Ala Cys Ile Asp Asp
            340   345   350

Gly Leu Val Asn Asn Thr His Ser Thr Asp Asn Leu His Lys Pro Ala
            355   360   365

Lys Lys Val Leu Lys Phe Lys Pro Thr Val Asp Val Pro Asp Lys Thr
    370   375   380

Gln Val Ala His Val Leu Pro Arg Leu Arg Glu Val Ala Asn Thr Pro
385   390   395   400

Asp Val Val Leu Asn Val Ser Asn Val Asp Thr Pro Glu Ser Ser Pro
            405   410   415

Thr Phe Ser Arg Asn Met Asn Val Gly Ser Ser Leu Lys Asp Arg Lys
            420   425   430

Pro Phe Leu Phe Glu Gln Ser Gly Asp Val Asn Met Val Val Glu Lys
    435   440   445

Leu Leu Gln His Gly His Glu Ile Ser Asn Gly Tyr Val Gln Asn Ala
    450   455   460

Val Gly Thr Leu Asp Thr Val Ile Thr Gly His Thr Asn Val Pro Ile
465   470   475   480

Trp Val Thr Arg Pro Leu Val Met Pro Asp Glu Lys Asp Pro Leu Glu
           485   490   495

Leu Phe Ile Asn Leu Thr Ile Leu Arg Leu Thr Gly Phe Val Val Glu
         500   505   510

Asn Gly Thr Arg Thr His His Gly Ala Thr Ser Val Val Ser Asp Phe
       515   520   525

Ile Gly Pro Leu Gly Glu Ile Leu Thr Gly Phe Pro Ser Ala Ala Glu
       530   535   540

Leu Ile Arg Val Thr Ser Leu Ile Leu Thr Asn Met Pro Gly Ala Glu
545   550   555   560

Tyr Ala Ile Lys Thr Val Leu Arg Lys Lys Cys Thr Ile Gly Met Leu
         565   570   575

Ile Ile Ala Lys Phe Gly Leu Val Ala Met Arg Val Gln Asp Thr Thr
         580   585   590

Gly Ala Leu His Ala Glu Leu Asp Val Leu Glu Ala Asp Leu Gly Gly
       595   600   605

Ser Ser Pro Ile Asp Leu Tyr Ser Arg Leu Ser Thr Gly Leu Ile Ser
       610   615   620

Ile Leu Asn Ser Pro Ile Ile Ser His Pro Gly Leu Phe Ala Glu Leu
625   630   635   640

Ile Pro Thr Arg Thr Gly Ser Leu Ser Glu Arg Ile Arg Leu Leu Cys
         645   650   655

Glu Leu Val Ser Ala Arg Glu Thr Arg Tyr Met Arg Glu His Thr Ala
         660   665   670

Leu Val Ser Ser Val Lys Ala Leu Glu Asn Ala Leu Arg Ser Thr Arg
       675   680   685

Asn Lys Ile Asp Ala Ile Gln Ile Pro Glu Val Pro Gln Glu Pro Pro
    690   695   700

Glu Glu Thr Asp Ile Pro Pro Glu Glu Leu Ile Arg Arg Val Tyr Glu
705   710   715   720

Ile Arg Ser Glu Val Thr Met Leu Leu Thr Ser Ala Val Thr Glu Tyr
            725   730   735

Phe Thr Arg Gly Val Leu Tyr Ser Thr Arg Ala Leu Ile Ala Glu Gln
            740   745   750

Ser Pro Arg Arg Phe Arg Val Ala Thr Ala Ser Thr Ala Pro Ile Gln
            755   760   765

Arg Leu Leu Asp Ser Leu Pro Glu Phe Asp Ala Lys Leu Thr Ala Ile
    770   775   780

Ile Ser Ser Leu Ser Ile His Pro Pro Pro Glu Thr Ile Gln Asn Leu
785   790   795   800

Pro Val Val Ser Leu Leu Lys Glu Leu Ile Lys Glu Gly Glu Asp Leu
            805   810   815

Asn Thr Asp Thr Ala Leu Val Ser Trp Leu Ser Val Val Gly Glu Ala
            820   825   830

Gln Thr Ala Gly Tyr Leu Ser Arg Arg Glu Phe Asp Glu Leu Ser Arg
            835   840   845

Thr Ile Lys Thr Ile Asn Thr Arg Ala Thr Gln Arg Ala Ser Ala Glu
    850   855   860

Ala Glu Leu Ser Cys Phe Asn Thr Leu Ser Ala Ala Val Asp Gln Ala
865   870   875   880

Val Lys Asp Tyr Glu Thr Tyr Asn Asn Gly Glu Val Lys Tyr Pro Glu
            885   890   895

Ile Thr Arg Asp Asp Leu Leu Ala Thr Ile Val Arg Ala Thr Asp Asp
            900   905   910

Leu Val Arg Gln Ile Lys Ile Leu Ser Asp Pro Met Ile Gln Ser Gly
            915   920   925

Leu Gln Pro Ser Ile Lys Arg Arg Leu Glu Thr Arg Leu Lys Glu Val
    930   935   940

Gln Thr Tyr Ala Asn Glu Ala Arg Thr Thr Gln Asp Thr Ile Lys Ser
945   950   955   960

Arg Lys Gln Ala Ala Tyr Asn Lys Leu Gly Gly Leu Leu Arg Pro Val
                965   970   975

Thr Gly Phe Val Gly Leu Arg Ala Ala Val Asp Leu Leu Pro Glu Leu
            980   985   990

Ala Ser Glu Leu Asp Val Gln Gly Ala Leu Val Asn Leu Arg Thr Lys
        995   1000   1005

Val Leu Glu Ala Pro Val Glu Ile Arg Ser Gln Leu Thr Gly Asp
    1010   1015   1020

Phe Trp Ala Leu Phe Asn Gln Tyr Arg Asp Ile Leu Glu His Pro
    1025   1030   1035

Gly Asn Ala Arg Thr Ser Val Leu Gly Gly Leu Gly Ala Cys Phe
    1040   1045   1050

Thr Ala Ile Ile Glu Ile Val Pro Ile Pro Thr Glu Tyr Arg Pro
    1055   1060   1065

Ser Leu Leu Ala Phe Phe Gly Asp Val Ala Asp Val Leu Ala Ser
    1070   1075   1080

Asp Ile Ala Thr Val Ser Thr Asn Pro Glu Ser Glu Ser Ala Ile
    1085   1090   1095

Asn Ala Val Val Ala Thr Leu Ser Lys Ala Thr Leu Val Ser Ser
    1100   1105   1110

Thr Val Pro Ala Leu Ser Phe Val Leu Ser Leu Tyr Lys Lys Tyr
    1115   1120   1125

Gln Ala Leu Gln Gln Glu Ile Thr Asn Thr His Lys Leu Thr Glu
    1130   1135   1140

Leu Gln Lys Gln Leu Gly Asp Asp Phe Ser Thr Leu Ala Val Ser
    1145   1150   1155

Ser Gly His Leu Lys Phe Ile Ser Ser Ser Asn Val Asp Asp Tyr
    1160   1165   1170

Glu Ile Asn Asp Ala Ile Leu Ser Ile Gln Thr Asn Val His Ala

Leu Met Asp Thr Val Lys Leu Val Glu Val Glu Leu Gln Lys Leu
    1190   1195   1200

Pro Pro His Cys Ile Ala Gly Thr Ser Thr Leu Ser Arg Val Val
    1205   1210   1215

Lys Asp Leu His Lys Leu Val Thr Met Ala His Glu Lys Lys Glu
    1220   1225   1230

Gln Ala Lys Val Leu Ile Thr Asp Cys Glu Arg Ala His Lys Gln
    1235   1240   1245

Gln Thr Thr Arg Val Leu Tyr Glu Arg Trp Thr Arg Asp Ile Ile
    1250   1255   1260

Ala Cys Leu Glu Ala Met Glu Thr Arg His Ile Phe Asn Gly Thr
    1265   1270   1275

Glu Leu Ala Arg Leu Arg Asp Met Ala Ala Ala Gly Gly Phe Asp
    1280   1285   1290

Ile His Ala Val Tyr Pro Gln Ala Arg Gln Val Val Ala Ala Cys
    1295   1300   1305

Glu Thr Thr Ala Val Thr Ala Leu Asp Thr Val Phe Arg His Asn
    1310   1315   1320

Pro Tyr Thr Pro Glu Asn Thr Asn Ile Pro Pro Pro Leu Ala Leu
    1325   1330   1335

Leu Arg Gly Leu Thr Trp Phe Asp Asp Phe Ser Ile Thr Ala Pro
    1340   1345   1350

Val Phe Thr Val Met Phe Pro Gly Val Ser Ile Glu Gly Leu Leu
    1355   1360   1365

Leu Leu Met Arg Ile Arg Ala Val Val Leu Leu Ser Ala Asp Thr
    1370   1375   1380

Ser Ile Asn Gly Ile Pro Asn Tyr Arg Asp Met Ile Leu Arg Thr
    1385   1390   1395

Ser Gly Asp Leu Leu Gln Ile Pro Ala Leu Ala Gly Tyr Val Asp
    1400   1405   1410

Phe Tyr Thr Arg Ser Tyr Asp Gln Phe Ile Thr Glu Ser Val Thr
    1415   1420   1425

Leu Ser Glu Leu Arg Ala Asp Ile Arg Gln Ala Ala Gly Ala Lys
    1430   1435   1440

Leu Thr Glu Ala Asn Lys Ala Leu Glu Glu Val Thr His Val Arg
    1445   1450   1455

Ala His Glu Thr Ala Lys Leu Ala Leu Lys Glu Gly Val Phe Ile
    1460   1465   1470

Thr Leu Pro Ser Glu Gly Leu Leu Ile Arg Ala Ile Glu Tyr Phe
    1475   1480   1485

Thr Thr Phe Asp His Lys Arg Phe Ile Gly Thr Ala Tyr Glu Arg
    1490   1495   1500

Val Leu Gln Thr Met Val Asp Arg Asp Leu Lys Glu Ala Asn Ala
    1505   1510   1515

Glu Leu Ala Gln Phe Arg Met Val Cys Gln Ala Thr Lys Asn Arg
    1520   1525   1530

Ala Ile Gln Ile Leu Gln Asn Ile Val Asp Thr Ala Asn Ala Thr
    1535   1540   1545

Glu Gln Gln Glu Asp Val Asp Phe Thr Asn Leu Lys Thr Leu Leu
    1550   1555   1560

Lys Leu Thr Pro Pro Pro Lys Thr Ile Ala Leu Ala Ile Asp Arg
    1565   1570   1575

Ser Thr Ser Val Gln Asp Ile Val Thr Gln Phe Ala Leu Leu Leu
    1580   1585   1590

Gly Arg Leu Glu Glu Glu Thr Gly Thr Leu Asp Ile Gln Ala Val
    1595   1600   1605

Asp Trp Met Tyr Gln Ala Arg Asn Ile Ile Asp Ser His Pro Leu
    1610   1615   1620

Ser Val Arg Ile Asp Gly Thr Gly Pro Leu His Thr Tyr Lys Asp
    1625   1630   1635

Arg Val Asp Lys Leu Tyr Ala Leu Arg Thr Lys Leu Asp Leu Leu
    1640   1645   1650

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Arg Arg Arg Ile Glu Thr Gly Glu Val Thr Trp Asp Asp Ala Trp
1655   1660   1665

Thr Thr Phe Lys Arg Glu Thr Gly Asp Met Leu Ala Ser Gly Asp
1670   1675   1680

Thr Tyr Ala Thr Ser Val Asp Ser Ile Lys Ala Leu Gln Ala Ser
1685   1690   1695

Ala Ser Val Val Asp Met Leu Cys Ser Glu Pro Glu Phe Phe Leu
1700   1705   1710

Leu Pro Val Glu Thr Lys Asn Arg Leu Gln Lys Lys Gln Gln Glu
1715   1720   1725

Arg Lys Thr Ala Leu Asp Val Val Leu Gln Lys Gln Arg Gln Phe
1730   1735   1740

Glu Glu Thr Ala Ser Arg Leu Arg Ala Leu Ile Glu Arg Ile Pro
1745   1750   1755

Thr Glu Ser Asp His Asp Val Leu Arg Met Leu Leu Arg Asp Phe
1760   1765   1770

Asp Gln Phe Thr His Leu Pro Ile Trp Ile Lys Thr Gln Tyr Met
1775   1780   1785

Thr Phe Arg Asn Leu Leu Met Val Arg Leu Gly Leu Tyr Ala Ser
1790   1795   1800

Tyr Ala Glu Ile Phe Pro Pro Ala Ser Pro Asn Gly Val Phe Ala
1805   1810   1815

Pro Ile Pro Ala Met Ser Gly Val Cys Leu Glu Asp Gln Ser Arg
1820   1825   1830

Cys Ile Arg Ala Arg Val Ala Ala Phe Met Gly Glu Ala Ser Val
1835   1840   1845

Val Gln Thr Phe Arg Glu Ala Arg Ser Ser Ile Asp Ala Leu Phe
1850   1855   1860

Gly Lys Asn Leu Thr Phe Tyr Leu Asp Thr Asp Gly Val Pro Leu
1865   1870   1875

Arg Tyr Arg Val Cys Tyr Lys Ser Val Gly Val Lys Leu Gly Thr
1880   1885   1890

Met Leu Cys Ser Gln Gly Gly Leu Ser Leu Arg Pro Ala Leu Pro
    1895   1900   1905

Asp Glu Gly Ile Val Glu Glu Thr Thr Leu Ser Ala Leu Arg Val
    1910   1915   1920

Ala Asn Glu Val Asn Glu Leu Arg Ile Glu Tyr Glu Ser Ala Ile
    1925   1930   1935

Lys Ser Gly Phe Ser Ala Phe Ser Thr Phe Val Arg His Arg His
    1940   1945   1950

Ala Glu Trp Gly Lys Thr Asn Ala Arg Arg Ala Ile Ala Glu Ile
    1955   1960   1965

Tyr Ala Gly Leu Ile Thr Thr Thr Leu Thr Arg Gln Tyr Gly Val
    1970   1975   1980

His Trp Asp Lys Leu Ile Tyr Ser Phe Glu Lys His His Leu Thr
    1985   1990   1995

Ser Val Met Gly Asn Gly Leu Thr Lys Pro Ile Gln Arg Arg Gly
    2000   2005   2010

Asp Val Arg Val Leu Glu Leu Thr Leu Ser Asp Ile Val Thr Ile
    2015   2020   2025

Leu Val Ala Thr Thr Pro Val His Leu Leu Asn Phe Ala Arg Leu
    2030   2035   2040

Asp Leu Ile Lys Gln His Glu Tyr Met Ala Arg Thr Leu Arg Pro
    2045   2050   2055

Val Ile Glu Ala Ala Phe Arg Gly Arg Leu Leu Val Arg Ser Leu
    2060   2065   2070

Asp Gly Asp Pro Lys Gly Asn Ala Arg Ala Phe Phe Asn Ala Ala
    2075   2080   2085

Pro Ser Lys His Lys Leu Pro Leu Ala Leu Gly Ser Asn Gln Asp
    2090   2095   2100

Pro Thr Gly Gly Arg Ile Phe Ala Phe Arg Met Ala Asp Trp Lys
    2105   2110   2115

Leu Val Lys Met Pro Gln Lys Ile Thr Asp Pro Phe Ala Pro Trp
                                Page 172

Gln Leu Ser Pro Pro Pro Gly Val Lys Ala Asn Val Asp Ala Val
    2135   2140   2145

Thr Arg Ile Met Ala Thr Asp Arg Leu Ala Thr Ile Thr Val Leu
    2150   2155   2160

Gly Arg Met Cys Leu Pro Pro Ile Ser Leu Val Ser Met Trp Asn
    2165   2170   2175

Thr Leu Gln Pro Glu Glu Phe Ala Tyr Arg Thr Gln Asp Asp Val
    2180   2185   2190

Asp Ile Ile Val Asp Ala Arg Leu Asp Leu Ser Ser Thr Leu Asn
    2195   2200   2205

Ala Arg Phe Asp Thr Ala Pro Ser Asn Thr Thr Leu Glu Trp Asn
    2210   2215   2220

Thr Asp Arg Lys Val Ile Thr Asp Ala Tyr Ile Gln Thr Gly Ala
    2225   2230   2235

Thr Thr Val Phe Thr Val Thr Gly Ala Ala Pro Thr His Val Ser
    2240   2245   2250

Asn Val Thr Ala Phe Asp Ile Ala Thr Thr Ala Ile Leu Phe Gly
    2255   2260   2265

Ala Pro Leu Val Ile Ala Met Glu Leu Thr Ser Val Phe Ser Gln
    2270   2275   2280

Asn Ser Gly Leu Thr Leu Gly Leu Lys Leu Phe Asp Ser Arg His
    2285   2290   2295

Met Ala Thr Asp Ser Gly Ile Ser Ser Ala Val Ser Pro Asp Ile
    2300   2305   2310

Val Ser Trp Gly Leu Arg Leu Leu His Met Asp Pro His Pro Ile
    2315   2320   2325

Glu Asn Ala Cys Leu Ile Val Gln Leu Glu Lys Leu Ser Ala Leu
    2330   2335   2340

Ile Ala Asn Lys Pro Leu Thr Asn Asn Pro Pro Cys Leu Leu Leu
    2345   2350   2355

Leu Asp Glu His Met Asn Pro Ser Tyr Val Leu Trp Glu Arg Lys
    2360   2365   2370

Asp Ser Ile Pro Ala Pro Asp Tyr Val Val Phe Trp Gly Pro Glu
    2375   2380   2385

Ser Leu Ile Asp Leu Pro Tyr Ile Asp Ser Asp Glu Asp Ser Phe
    2390   2395   2400

Pro Ser Cys Pro Asp Asp Pro Phe Tyr Ser Gln Ile Ile Ala Gly
    2405   2410   2415

Tyr Ala Pro Gln Gly Pro Pro Asn Leu Asp Thr Thr Asp Phe Tyr
    2420   2425   2430

Pro Thr Glu Pro Leu Phe Lys Ser Pro Val Gln Val Val Arg Ser
    2435   2440   2445

Ser Lys Cys Lys Lys Met Pro Val Arg Pro Ala Gln Pro Ala Gln
    2450   2455   2460

Pro Ala Gln Pro Ala Gln Pro Ala Gln Thr Val Gln Pro Ala Gln
    2465   2470   2475

Pro Ile Glu Pro Gly Thr Gln Ile Val Val Gln Asn Phe Lys Lys
    2480   2485   2490

Pro Gln Ser Val Lys Thr Thr Leu Ser Gln Lys Asp Ile Pro Leu
    2495   2500   2505

Tyr Val Glu Thr Glu Ser Glu Thr Ala Val Leu Ile Pro Lys Gln
    2510   2515   2520

Leu Thr Thr Ser Ile Lys Thr Thr Val Cys Lys Ser Ile Thr Pro
    2525   2530   2535

Pro Asn Asn Gln Leu Ser Asp Trp Lys Asn Asn Pro Gln Gln Asn
    2540   2545   2550

Gln Thr Leu Asn Gln Ala Phe Ser Lys Pro Ile Leu Glu Ile Thr
    2555   2560   2565

Ser Ile Pro Thr Asp Asp Ser Ile Ser Tyr Arg Thr Trp Ile Glu
    2570   2575   2580

Lys Ser Asn Gln Thr Gln Lys Arg His Gln Asn Asp Pro Arg Met
    2585   2590   2595

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Tyr Asn Ser Lys Thr Val Phe His Pro Val Asn Asn Gln Leu Pro
    2600   2605   2610

Ser Trp Val Asp Thr Ala Ala Asp Ala Pro Gln Thr Asp Leu Leu
    2615   2620   2625

Thr Asn Tyr Lys Thr Arg Gln Pro Ser Pro Asn Phe Pro Arg Asp
    2630   2635   2640

Val His Thr Trp Gly Val Ser Ser Asn Pro Phe Asn Ser Pro Asn
    2645   2650   2655

Arg Asp Leu Tyr Gln Ser Asp Phe Ser Glu Pro Ser Asp Gly Tyr
    2660   2665   2670

Ser Ser Glu Ser Glu Asn Ser Ile Val Leu Ser Leu Asp Glu His
    2675   2680   2685

Arg Ser Cys Arg Val Pro Arg His Val Arg Val Val Asn Ala Asp
    2690   2695   2700

Val Val Thr Gly Arg Arg Tyr Val Arg Gly Thr Ala Leu Gly Ala
    2705   2710   2715

Leu Ala Leu Leu Ser Gln Ala Cys Arg Arg Met Ile Asp Asn Val
    2720   2725   2730

Arg Tyr Thr Arg Lys Leu Leu Met Asp His Thr Glu Asp Ile Phe
    2735   2740   2745

Gln Gly Leu Gly Tyr Val Lys Leu Leu Leu Asp Gly Thr Tyr Ile
    2750   2755   2760

<210>   20
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<213>   Varicella zoster

<400>   20

Met Asp Arg Val Glu Ser Glu Glu Pro Met Asp Gly Phe Glu Ser Pro
1   5   10   15

Val Phe Ser Glu Asn Thr Ser Ser Asn Ser Gly Trp Cys Ser Asp Ala
            20   25   30

Phe Ser Asp Ser Tyr Ile Ala Tyr Asn Pro Ala Leu Leu Leu Lys Asn
        35   40   45

Asp Leu Leu Phe Ser Glu Leu Leu Phe Ala Ser His Leu Ile Asn Val
    50   55   60

Pro Arg Ala Ile Glu Asn Asn Val Thr Tyr Glu Ala Ser Ser Ala Val
65   70   75   80

Gly Val Asp Asn Glu Met Thr Ser Ser Thr Thr Glu Phe Ile Glu Glu
                85   90   95

Ile Gly Asp Val Leu Ala Leu Asp Arg Ala Cys Leu Val Cys Arg Thr
            100   105   110

Leu Asp Leu Tyr Lys Arg Lys Phe Gly Leu Thr Pro Glu Trp Val Ala
            115   120   125

Asp Tyr Ala Met Leu Cys Met Lys Ser Leu Ala Ser Pro Pro Cys Ala
    130   135   140

Val Val Thr Phe Ser Ala Ala Phe Glu Phe Val Tyr Leu Met Asp Arg
145   150   155   160

Tyr Tyr Leu Cys Arg Tyr Asn Val Thr Leu Val Gly Ser Phe Ala Arg
            165   170   175

Arg Thr Leu Ser Leu Leu Asp Ile Gln Arg His Phe Phe Leu His Val
            180   185   190

Cys Phe Arg Thr Asp Gly Gly Leu Pro Gly Ile Arg Pro Pro Pro Gly
            195   200   205

Lys Glu Met Ala Asn Lys Val Arg Tyr Ser Asn Tyr Ser Phe Phe Val
    210   215   220

Gln Ala Val Val Arg Ala Ala Leu Leu Ser Ile Ser Thr Ser Arg Leu
225   230   235   240

Asp Glu Thr Glu Thr Arg Lys Ser Phe Tyr Phe Asn Gln Asp Gly Leu
            245   250   255

Thr Gly Gly Pro Gln Pro Leu Ala Ala Ala Leu Ala Asn Trp Lys Asp
            260   265   270

Cys Ala Arg Met Val Asp Cys Ser Ser Ser Glu His Arg Thr Ser Gly
            275   280   285

Met Ile Thr Cys Ala Glu Arg Ala Leu Lys Glu Asp Ile Glu Phe Glu
    290   295   300

Asp Ile Leu Ile Asp Lys Leu Lys Lys Ser Ser Tyr Val Glu Ala Ala
305   310   315   320

Trp Gly Tyr Ala Asp Leu Ala Leu Leu Leu Ser Gly Val Ala Thr
            325   330   335

Trp Asn Val Asp Glu Arg Thr Asn Cys Ala Ile Glu Thr Arg Val Gly
            340   345   350

Cys Val Lys Ser Tyr Trp Gln Ala Asn Arg Ile Glu Asn Ser Arg Asp
            355   360   365

Val Pro Lys Gln Phe Ser Lys Phe Thr Ser Glu Asp Ala Cys Pro Glu
    370   375   380

Val Ala Phe Gly Pro Ile Leu Leu Thr Thr Leu Lys Asn Ala Lys Cys
385   390   395   400

Arg Gly Arg Thr Asn Thr Glu Cys Met Leu Cys Cys Leu Leu Thr Ile
            405   410   415

Gly His Tyr Trp Ile Ala Leu Arg Gln Phe Lys Arg Asp Ile Leu Ala
            420   425   430

Tyr Ser Ala Asn Asn Thr Ser Leu Phe Asp Cys Ile Glu Pro Val Ile
            435   440   445

Asn Ala Trp Ser Leu Asp Asn Pro Ile Lys Leu Lys Phe Pro Phe Asn
    450   455   460

Asp Glu Gly Arg Phe Ile Thr Ile Val Lys Ala Ala Gly Ser Glu Ala
465   470   475   480

Val Tyr Lys His Leu Phe Cys Asp Leu Leu Cys Ala Leu Ser Glu Leu
            485   490   495

Gln Thr Asn Pro Lys Ile Leu Phe Ala His Pro Thr Thr Ala Asp Lys
            500   505   510

Glu Val Leu Glu Leu Tyr Lys Ala Gln Leu Ala Ala Gln Asn Arg Phe
    515   520   525

Glu Gly Arg Val Cys Ala Gly Leu Trp Thr Leu Ala Tyr Ala Phe Lys
    530   535   540

Ala Tyr Gln Ile Phe Pro Arg Lys Pro Thr Ala Asn Ala Ala Phe Ile
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545   550   555   560

Arg Asp Gly Gly Leu Met Leu Arg Arg His Ala Ile Ser Leu Val Ser
                565   570   575

Leu Glu His Thr Leu Ser Lys Tyr Val
                580   585

<210>   21
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<213>   Varicella zoster

<400>   21

Met Glu Asn Thr Gln Lys Thr Val Thr Val Pro Thr Gly Pro Leu Gly
1   5   10   15

Tyr Val Tyr Ala Cys Arg Val Glu Asp Leu Asp Leu Glu Glu Ile Ser
                20   25   30

Phe Leu Ala Ala Arg Ser Thr Asp Ser Asp Leu Ala Leu Leu Pro Leu
        35   40   45

Met Arg Asn Leu Thr Val Glu Lys Thr Phe Thr Ser Ser Leu Ala Val
        50   55   60

Val Ser Gly Ala Arg Thr Thr Gly Leu Ala Gly Ala Gly Ile Thr Leu
65   70   75   80

Lys Leu Thr Thr Ser His Phe Tyr Pro Ser Val Phe Val Phe His Gly
                85   90   95

Gly Lys His Val Leu Pro Ser Ser Ala Ala Pro Asn Leu Thr Arg Ala
                100   105   110

Cys Asn Ala Ala Arg Glu Arg Phe Gly Phe Ser Arg Cys Gln Gly Pro
        115   120   125

Pro Val Asp Gly Ala Val Glu Thr Thr Gly Ala Glu Ile Cys Thr Arg
        130   135   140

Leu Gly Leu Glu Pro Glu Asn Thr Ile Leu Tyr Leu Val Val Thr Ala
145   150   155   160

Leu Phe Lys Glu Ala Val Phe Met Cys Asn Val Phe Leu His Tyr Gly
                165   170   175

Gly Leu Asp Ile Val His Ile Asn His Gly Asp Val Ile Arg Ile Pro

Leu Phe Pro Val Gln Leu Phe Met Pro Asp Val Asn Arg Leu Val Pro
        195   200   205

Asp Pro Phe Asn Thr His His Arg Ser Ile Gly Glu Gly Phe Val Tyr
210   215   220

Pro Thr Pro Phe Tyr Asn Thr Gly Leu Cys His Leu Ile His Asp Cys
225   230   235   240

Val Ile Ala Pro Met Ala Val Ala Leu Arg Val Arg Asn Val Thr Ala
            245   250   255

Val Ala Arg Gly Ala Ala His Leu Ala Phe Asp Glu Asn His Glu Gly
            260   265   270

Ala Val Leu Pro Pro Asp Ile Thr Tyr Thr Tyr Phe Gln Ser Ser Ser
        275   280   285

Ser Gly Thr Thr Thr Ala Arg Gly Ala Arg Arg Asn Asp Val Asn Ser
    290   295   300

Thr Ser Lys Pro Ser Pro Ser Gly Gly Phe Glu Arg Arg Leu Ala Ser
305   310   315   320

Ile Met Ala Ala Asp Thr Ala Leu His Ala Glu Val Ile Phe Asn Thr
            325   330   335

Gly Ile Tyr Glu Glu Thr Pro Thr Asp Ile Lys Glu Trp Pro Met Phe
            340   345   350

Ile Gly Met Glu Gly Thr Leu Pro Arg Leu Asn Ala Leu Gly Ser Tyr
        355   360   365

Thr Ala Arg Val Ala Gly Val Ile Gly Ala Met Val Phe Ser Pro Asn
    370   375   380

Ser Ala Leu Tyr Leu Thr Glu Val Glu Asp Ser Gly Met Thr Glu Ala
385   390   395   400

Lys Asp Gly Gly Pro Gly Pro Ser Phe Asn Arg Phe Tyr Gln Phe Ala
            405   410   415

Gly Pro His Leu Ala Ala Asn Pro Gln Thr Asp Arg Asp Gly His Val
        420   425   430

Leu Ser Ser Gln Ser Thr Gly Ser Ser Asn Thr Glu Phe Ser Val Asp
        435   440   445

Tyr Leu Ala Leu Ile Cys Gly Phe Gly Ala Pro Leu Leu Ala Arg Leu
    450   455   460

Leu Phe Tyr Leu Glu Arg Cys Asp Ala Gly Ala Phe Thr Gly Gly His
465   470   475   480

Gly Asp Ala Leu Lys Tyr Val Thr Gly Thr Phe Asp Ser Glu Ile Pro
                485   490   495

Cys Ser Leu Cys Glu Lys His Thr Arg Pro Val Cys Ala His Thr Thr
            500   505   510

Val His Arg Leu Arg Gln Arg Met Pro Arg Phe Gly Gln Ala Thr Arg
        515   520   525

Gln Pro Ile Gly Val Phe Gly Thr Met Asn Ser Gln Tyr Ser Asp Cys
    530   535   540

Asp Pro Leu Gly Asn Tyr Ala Pro Tyr Leu Ile Leu Arg Lys Pro Gly
545   550   555   560

Asp Gln Thr Glu Ala Ala Lys Ala Thr Met Gln Asp Thr Tyr Arg Ala
                565   570   575

Thr Leu Glu Arg Leu Phe Ile Asp Leu Glu Gln Glu Arg Leu Leu Asp
        580   585   590

Arg Gly Ala Pro Cys Ser Ser Glu Gly Leu Ser Ser Val Ile Val Asp
        595   600   605

His Pro Thr Phe Arg Arg Ile Leu Asp Thr Leu Arg Ala Arg Ile Glu
    610   615   620

Gln Thr Thr Thr Gln Phe Met Lys Val Leu Val Glu Thr Arg Asp Tyr
625   630   635   640

Lys Ile Arg Glu Gly Leu Ser Glu Ala Thr His Ser Met Ala Leu Thr
                645   650   655

Phe Asp Pro Tyr Ser Gly Ala Phe Cys Pro Ile Thr Asn Phe Leu Val
            660   665   670

Lys Arg Thr His Leu Ala Val Val Gln Asp Leu Ala Leu Ser Gln Cys
    675   680   685

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His Cys Val Phe Tyr Gly Gln Gln Val Glu Gly Arg Asn Phe Arg Asn
690   695   700

Gln Phe Gln Pro Val Leu Arg Arg Arg Phe Val Asp Leu Phe Asn Gly
705   710   715   720

Gly Phe Ile Ser Thr Arg Ser Ile Thr Val Thr Leu Ser Glu Gly Pro
                725   730   735

Val Ser Ala Pro Asn Pro Thr Leu Gly Gln Asp Ala Pro Ala Gly Arg
                740   745   750

Thr Phe Asp Gly Asp Leu Ala Arg Val Ser Val Glu Val Ile Arg Asp
                755   760   765

Ile Arg Val Lys Asn Arg Val Val Phe Ser Gly Asn Cys Thr Asn Leu
                770   775   780

Ser Glu Ala Ala Arg Ala Arg Leu Val Gly Leu Ala Ser Ala Tyr Gln
785   790   795   800

Arg Gln Glu Lys Arg Val Asp Met Leu His Gly Ala Leu Gly Phe Leu
                805   810   815

Leu Lys Gln Phe His Gly Leu Leu Phe Pro Arg Gly Met Pro Pro Asn
                820   825   830

Ser Lys Ser Pro Asn Pro Gln Trp Phe Trp Thr Leu Leu Gln Arg Asn
                835   840   845

Gln Met Pro Ala Asp Lys Leu Thr His Glu Glu Ile Thr Thr Ile Ala
850   855   860

Ala Val Lys Arg Phe Thr Glu Glu Tyr Ala Ala Ile Asn Phe Ile Asn
865   870   875   880

Leu Pro Pro Thr Cys Ile Gly Glu Leu Ala Gln Phe Tyr Met Ala Asn
                885   890   895

Leu Ile Leu Lys Tyr Cys Asp His Ser Gln Tyr Leu Ile Asn Thr Leu
                900   905   910

Thr Ser Ile Ile Thr Gly Ala Arg Arg Pro Arg Asp Pro Ser Ser Val
                915   920   925

Leu His Trp Ile Arg Lys Asp Val Thr Ser Ala Ala Asp Ile Glu Thr
930   935   940

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Gln Ala Lys Ala Leu Leu Glu Lys Thr Glu Asn Leu Pro Glu Leu Trp
945   950   955   960

Thr Thr Ala Phe Thr Ser Thr His Leu Val Arg Ala Ala Met Asn Gln
              965   970   975

Arg Pro Met Val Val Leu Gly Ile Ser Ile Ser Lys Tyr His Gly Ala
              980   985   990

Ala Gly Asn Asn Arg Val Phe Gln Ala Gly Asn Trp Ser Gly Leu Asn
              995   1000   1005

Gly Gly Lys Asn Val Cys Pro Leu Phe Thr Phe Asp Arg Thr Arg
      1010   1015   1020

Arg Phe Ile Ile Ala Cys Pro Arg Gly Gly Phe Ile Cys Pro Val
      1025   1030   1035

Thr Gly Pro Ser Ser Gly Asn Arg Glu Thr Thr Leu Ser Asp Gln
      1040   1045   1050

Val Arg Gly Ile Ile Val Ser Gly Gly Ala Met Val Gln Leu Ala
      1055   1060   1065

Ile Tyr Ala Thr Val Val Arg Ala Val Gly Ala Arg Ala Gln His
      1070   1075   1080

Met Ala Phe Asp Asp Trp Leu Ser Leu Thr Asp Asp Glu Phe Leu
      1085   1090   1095

Ala Arg Asp Leu Glu Glu Leu His Asp Gln Ile Ile Gln Thr Leu
      1100   1105   1110

Glu Thr Pro Trp Thr Val Glu Gly Ala Leu Glu Ala Val Lys Ile
      1115   1120   1125

Leu Asp Glu Lys Thr Thr Ala Gly Asp Gly Glu Thr Pro Thr Asn
      1130   1135   1140

Leu Ala Phe Asn Phe Asp Ser Cys Glu Pro Ser His Asp Thr Thr
      1145   1150   1155

Ser Asn Val Leu Asn Ile Ser Gly Ser Asn Ile Ser Gly Ser Thr
      1160   1165   1170

Val Pro Gly Leu Lys Arg Pro Pro Glu Asp Asp Glu Leu Phe Asp

```
                                               1175                    1180                        1185
```

```
Leu Ser  Gly Ile Pro Ile Lys  His Gly Asn Ile Thr  Met Glu Met
    1190                    1195                        1200
```

```
Ile
```

```
<210>   22
<211>   770
<212>   PRT
<213>   Varicella zoster
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```
<400>   22
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```
Met Glu Leu Asp Ile Asn Arg Thr Leu Leu Val Leu Leu Gly Gln Val
1                   5                   10                      15
```

```
Tyr Thr Tyr Ile Phe Gln Val Glu Leu Leu Arg Arg Cys Asp Pro Arg
                20                  25                  30
```

```
Val Ala Cys Arg Phe Leu Tyr Arg Leu Ala Ala Asn Cys Leu Thr Val
            35                  40                  45
```

```
Arg Tyr Leu Leu Lys Leu Phe Leu Arg Gly Phe Asn Thr Gln Leu Lys
    50                  55                  60
```

```
Phe Gly Asn Thr Pro Thr Val Cys Ala Leu His Trp Ala Leu Cys Tyr
65                  70                  75                      80
```

```
Val Lys Gly Glu Gly Glu Arg Leu Phe Glu Leu Leu Gln His Phe Lys
                85                  90                  95
```

```
Thr Arg Phe Val Tyr Gly Glu Thr Lys Asp Ser Asn Cys Ile Lys Asp
                100                 105                 110
```

```
Tyr Phe Val Ser Ala Phe Asn Leu Lys Thr Cys Gln Tyr His His Glu
            115                 120                 125
```

```
Leu Ser Leu Thr Thr Tyr Gly Gly Tyr Val Ser Ser Glu Ile Gln Phe
    130                 135                 140
```

```
Leu His Asp Ile Glu Asn Phe Leu Lys Gln Leu Asn Tyr Cys Tyr Ile
145                 150                 155                     160
```

```
Ile Thr Ser Ser Arg Glu Ala Leu Asn Thr Leu Glu Thr Val Thr Arg
                165                 170                     175
```

```
Phe Met Thr Asp Thr Ile Gly Ser Gly Leu Ile Pro Pro Val Glu Leu
```

Phe Asp Pro Ala His Pro Cys Ala Ile Cys Phe Glu Glu Leu Cys Ile
        195   200   205

Thr Ala Asn Gln Gly Glu Thr Leu His Arg Arg Leu Leu Gly Cys Ile
        210   215   220

Cys Asp His Val Thr Lys Gln Val Arg Val Asn Val Asp Val Asp Asp
225   230   235   240

Ile Ile Arg Cys Leu Pro Tyr Ile Pro Asp Val Pro Asp Ile Lys Arg
            245   250   255

Gln Ser Ala Val Glu Ala Leu Arg Thr Leu Gln Thr Lys Thr Val Val
        260   265   270

Asn Pro Met Gly Ala Lys Asn Asp Thr Phe Asp Gln Thr Tyr Glu Ile
        275   280   285

Ala Ser Thr Met Leu Asp Ser Tyr Asn Val Phe Lys Pro Ala Pro Arg
        290   295   300

Cys Met Tyr Ala Ile Ser Glu Leu Lys Phe Trp Leu Thr Ser Asn Ser
305   310   315   320

Thr Glu Gly Pro Gln Arg Thr Leu Asp Val Phe Val Asp Asn Leu Asp
            325   330   335

Val Leu Asn Glu His Glu Lys His Ala Glu Leu Thr Ala Val Thr Val
        340   345   350

Glu Leu Ala Leu Phe Gly Lys Thr Pro Ile His Phe Asp Arg Ala Phe
        355   360   365

Ser Glu Glu Leu Gly Ser Leu Asp Ala Ile Asp Ser Ile Leu Val Gly
        370   375   380

Asn Arg Ser Ser Ser Pro Asp Ser Gln Ile Glu Ala Leu Ile Lys Ala
385   390   395   400

Cys Tyr Ala His His Leu Ser Ser Pro Leu Met Arg His Ile Ser Asn
            405   410   415

Pro Ser His Asp Asn Glu Ala Ala Leu Arg Gln Leu Leu Glu Arg Val
            420   425   430

```
Gly Cys Glu Asp Asp Leu Thr Lys Glu Ala Ser Asp Ser Ala Thr Ala
        435             440             445

Ser Glu Cys Asp Leu Asn Asp Asp Ser Ser Ile Thr Phe Ala Val His
    450             455             460

Gly Trp Glu Asn Leu Leu Ser Lys Ala Lys Ile Asp Ala Ala Glu Arg
465             470             475             480

Lys Arg Val Tyr Leu Glu His Leu Ser Lys Arg Ser Leu Thr Ser Leu
            485             490             495

Gly Arg Cys Ile Arg Glu Gln Arg Gln Glu Leu Glu Lys Thr Leu Arg
        500             505             510

Val Asn Val Tyr Gly Glu Ala Leu Leu Gln Thr Phe Val Ser Met Gln
    515             520             525

Asn Gly Phe Gly Ala Arg Asn Val Phe Leu Ala Lys Val Ser Gln Ala
    530             535             540

Gly Cys Ile Ile Asp Asn Arg Ile Gln Glu Ala Ala Phe Asp Ala His
545             550             555             560

Arg Phe Ile Arg Asn Thr Leu Val Arg His Thr Val Asp Ala Ala Met
            565             570             575

Leu Pro Ala Leu Thr His Lys Phe Phe Glu Leu Val Asn Gly Pro Leu
        580             585             590

Phe Asn His Asp Glu His Arg Phe Ala Gln Pro Pro Asn Thr Ala Leu
    595             600             605

Phe Phe Thr Val Glu Asn Val Gly Leu Phe Pro His Leu Lys Glu Glu
    610             615             620

Leu Ala Lys Phe Met Gly Gly Val Val Gly Ser Asn Trp Leu Leu Ser
625             630             635             640

Pro Phe Arg Gly Phe Tyr Cys Phe Ser Gly Val Glu Gly Val Thr Phe
            645             650             655

Ala Gln Arg Leu Ala Trp Lys Tyr Ile Arg Glu Leu Val Phe Ala Thr
        660             665             670

Thr Leu Phe Thr Ser Val Phe His Cys Gly Glu Val Arg Leu Cys Arg
    675             680             685
```

```
Val Asp Arg Leu Gly Lys Asp Pro Arg Gly Cys Thr Ser Gln Pro Lys
    690             695             700

Gly Ile Gly Ser Ser His Gly Pro Leu Asp Gly Ile Tyr Leu Thr Tyr
705             710             715             720

Glu Glu Thr Cys Pro Leu Val Ala Ile Ile Gln Ser Gly Glu Thr Gly
            725             730             735

Ile Asp Gln Asn Thr Val Val Ile Tyr Asp Ser Asp Val Phe Ser Leu
            740             745             750

Leu Tyr Thr Leu Met Gln Arg Leu Ala Pro Asp Ser Thr Asp Pro Ala
    755             760             765

Phe Ser
    770


<210>  23
<211>  868
<212>  PRT
<213>  Varicella zoster

<400>  23

Met Phe Val Thr Ala Val Val Ser Val Ser Pro Ser Ser Phe Tyr Glu
1               5               10              15

Ser Leu Gln Val Glu Pro Thr Gln Ser Glu Asp Ile Thr Arg Ser Ala
            20              25              30

His Leu Gly Asp Gly Asp Glu Ile Arg Glu Ala Ile His Lys Ser Gln
        35              40              45

Asp Ala Glu Thr Lys Pro Thr Phe Tyr Val Cys Pro Pro Thr Gly
    50              55              60

Ser Thr Ile Val Arg Leu Glu Pro Thr Arg Thr Cys Pro Asp Tyr His
65              70              75              80

Leu Gly Lys Asn Phe Thr Glu Gly Ile Ala Val Val Tyr Lys Glu Asn
            85              90              95

Ile Ala Ala Tyr Lys Phe Lys Ala Thr Val Tyr Tyr Lys Asp Val Ile
            100             105             110

Val Ser Thr Ala Trp Ala Gly Ser Ser Tyr Thr Gln Ile Thr Asn Arg
    115             120             125
```

```
Tyr Ala Asp Arg Val Pro Ile Pro Val Ser Glu Ile Thr Asp Thr Ile
    130             135             140
```

```
Asp Lys Phe Gly Lys Cys Ser Ser Lys Ala Thr Tyr Val Arg Asn Asn
145             150             155             160
```

```
His Lys Val Glu Ala Phe Asn Glu Asp Lys Asn Pro Gln Asp Met Pro
                165             170             175
```

```
Leu Ile Ala Ser Lys Tyr Asn Ser Val Gly Ser Lys Ala Trp His Thr
            180             185             190
```

```
Thr Asn Asp Thr Tyr Met Val Ala Gly Thr Pro Gly Thr Tyr Arg Thr
        195             200             205
```

```
Gly Thr Ser Val Asn Cys Ile Ile Glu Glu Val Glu Ala Arg Ser Ile
    210             215             220
```

```
Phe Pro Tyr Asp Ser Phe Gly Leu Ser Thr Gly Asp Ile Ile Tyr Met
225             230             235             240
```

```
Ser Pro Phe Phe Gly Leu Arg Asp Gly Ala Tyr Arg Glu His Ser Asn
            245             250             255
```

```
Tyr Ala Met Asp Arg Phe His Gln Phe Glu Gly Tyr Arg Gln Arg Asp
            260             265             270
```

```
Leu Asp Thr Arg Ala Leu Leu Glu Pro Ala Ala Arg Asn Phe Leu Val
    275             280             285
```

```
Thr Pro His Leu Thr Val Gly Trp Asn Trp Lys Pro Lys Arg Thr Glu
    290             295             300
```

```
Val Cys Ser Leu Val Lys Trp Arg Glu Val Glu Asp Val Val Arg Asp
305             310             315             320
```

```
Glu Tyr Ala His Asn Phe Arg Phe Thr Met Lys Thr Leu Ser Thr Thr
            325             330             335
```

```
Phe Ile Ser Glu Thr Asn Glu Phe Asn Leu Asn Gln Ile His Leu Ser
            340             345             350
```

```
Gln Cys Val Lys Glu Glu Ala Arg Ala Ile Ile Asn Arg Ile Tyr Thr
    355             360             365
```

```
Thr Arg Tyr Asn Ser Ser His Val Arg Thr Gly Asp Ile Gln Thr Tyr
    370             375             380
```

Leu Ala Arg Gly Gly Phe Val Val Val Phe Gln Pro Leu Leu Ser Asn
385   390   395   400

Ser Leu Ala Arg Leu Tyr Leu Gln Glu Leu Val Arg Glu Asn Thr Asn
                405   410   415

His Ser Pro Gln Lys His Pro Thr Arg Asn Thr Arg Ser Arg Arg Ser
                420   425   430

Val Pro Val Glu Leu Arg Ala Asn Arg Thr Ile Thr Thr Thr Ser Ser
        435   440   445

Val Glu Phe Ala Met Leu Gln Phe Thr Tyr Asp His Ile Gln Glu His
    450   455   460

Val Asn Glu Met Leu Ala Arg Ile Ser Ser Ser Trp Cys Gln Leu Gln
465   470   475   480

Asn Arg Glu Arg Ala Leu Trp Ser Gly Leu Phe Pro Ile Asn Pro Ser
                485   490   495

Ala Leu Ala Ser Thr Ile Leu Asp Gln Arg Val Lys Ala Arg Ile Leu
                500   505   510

Gly Asp Val Ile Ser Val Ser Asn Cys Pro Glu Leu Gly Ser Asp Thr
        515   520   525

Arg Ile Ile Leu Gln Asn Ser Met Arg Val Ser Gly Ser Thr Thr Arg
    530   535   540

Cys Tyr Ser Arg Pro Leu Ile Ser Ile Val Ser Leu Asn Gly Ser Gly
545   550   555   560

Thr Val Glu Gly Gln Leu Gly Thr Asp Asn Glu Leu Ile Met Ser Arg
                565   570   575

Asp Leu Leu Glu Pro Cys Val Ala Asn His Lys Arg Tyr Phe Leu Phe
                580   585   590

Gly His His Tyr Val Tyr Tyr Glu Asp Tyr Arg Tyr Val Arg Glu Ile
                595   600   605

Ala Val His Asp Val Gly Met Ile Ser Thr Tyr Val Asp Leu Asn Leu
        610   615   620

Thr Leu Leu Lys Asp Arg Glu Phe Met Pro Leu Gln Val Tyr Thr Arg

625   630   635   640

Asp Glu Leu Arg Asp Thr Gly Leu Leu Asp Tyr Ser Glu Ile Gln Arg
            645   650   655

Arg Asn Gln Met His Ser Leu Arg Phe Tyr Asp Ile Asp Lys Val Val
            660   665   670

Gln Tyr Asp Ser Gly Thr Ala Ile Met Gln Gly Met Ala Gln Phe Phe
            675   680   685

Gln Gly Leu Gly Thr Ala Gly Gln Ala Val Gly His Val Val Leu Gly
        690   695   700

Ala Thr Gly Ala Leu Leu Ser Thr Val His Gly Phe Thr Thr Phe Leu
705   710   715   720

Ser Asn Pro Phe Gly Ala Leu Ala Val Gly Leu Leu Val Leu Ala Gly
            725   730   735

Leu Val Ala Ala Phe Phe Ala Tyr Arg Tyr Val Leu Lys Leu Lys Thr
            740   745   750

Ser Pro Met Lys Ala Leu Tyr Pro Leu Thr Thr Lys Gly Leu Lys Gln
            755   760   765

Leu Pro Glu Gly Met Asp Pro Phe Ala Glu Lys Pro Asn Ala Thr Asp
        770   775   780

Thr Pro Ile Glu Glu Ile Gly Asp Ser Gln Asn Thr Glu Pro Ser Val
785   790   795   800

Asn Ser Gly Phe Asp Pro Asp Lys Phe Arg Glu Ala Gln Glu Met Ile
            805   810   815

Lys Tyr Met Thr Leu Val Ser Ala Ala Glu Arg Gln Glu Ser Lys Ala
            820   825   830

Arg Lys Lys Asn Lys Thr Ser Ala Leu Leu Thr Ser Arg Leu Thr Gly
        835   840   845

Leu Ala Leu Arg Asn Arg Arg Gly Tyr Ser Arg Val Arg Thr Glu Asn
    850   855   860

Val Thr Gly Val
865

<210> 24
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<212> PRT
<213> Varicella zoster

<400> 24

Met Glu Ser Ser Asn Ile Asn Ala Leu Gln Gln Pro Ser Ser Ile Ala
1   5   10   15

His His Pro Ser Lys Gln Cys Ala Ser Ser Leu Asn Glu Thr Val Lys
                20   25   30

Asp Ser Pro Pro Ala Ile Tyr Glu Asp Arg Leu Glu His Thr Pro Val
            35   40   45

Gln Leu Pro Arg Asp Gly Thr Pro Arg Asp Val Cys Ser Val Gly Gln
        50   55   60

Leu Thr Cys Arg Ala Cys Ala Thr Lys Pro Phe Arg Leu Asn Arg Asp
65   70   75   80

Ser Gln Tyr Asp Tyr Leu Asn Thr Cys Pro Gly Gly Arg His Ile Ser
                85   90   95

Leu Ala Leu Glu Ile Ile Thr Gly Arg Trp Val Cys Ile Pro Arg Val
            100   105   110

Phe Pro Asp Thr Pro Glu Glu Lys Trp Met Ala Pro Tyr Ile Ile Pro
        115   120   125

Asp Arg Glu Gln Pro Ser Ser Gly Asp Glu Asp Ser Asp Thr Asp
    130   135   140

<210> 25
<211> 341
<212> PRT
<213> Varicella zoster

<400> 25

Met Ser Thr Asp Lys Thr Asp Val Lys Met Gly Val Leu Arg Ile Tyr
1   5   10   15

Leu Asp Gly Ala Tyr Gly Ile Gly Lys Thr Thr Ala Ala Glu Glu Phe
                20   25   30

Leu His His Phe Ala Ile Thr Pro Asn Arg Ile Leu Leu Ile Gly Glu
            35   40   45

Pro Leu Ser Tyr Trp Arg Asn Leu Ala Gly Glu Asp Ala Ile Cys Gly

```
                    50                      55                      60
```

```
Ile Tyr Gly Thr Gln Thr Arg Arg Leu Asn Gly Asp Val Ser Pro Glu
65                  70                  75                  80
```

```
Asp Ala Gln Arg Leu Thr Ala His Phe Gln Ser Leu Phe Cys Ser Pro
                85                  90                  95
```

```
His Ala Ile Met His Ala Lys Ile Ser Ala Leu Met Asp Thr Ser Thr
            100                 105                 110
```

```
Ser Asp Leu Val Gln Val Asn Lys Glu Pro Tyr Lys Ile Met Leu Ser
        115                 120                 125
```

```
Asp Arg His Pro Ile Ala Ser Thr Ile Cys Phe Pro Leu Ser Arg Tyr
    130                 135                 140
```

```
Leu Val Gly Asp Met Ser Pro Ala Ala Leu Pro Gly Leu Leu Phe Thr
145                 150                 155                 160
```

```
Leu Pro Ala Glu Pro Pro Gly Thr Asn Leu Val Val Cys Thr Val Ser
                165                 170                 175
```

```
Leu Pro Ser His Leu Ser Arg Val Ser Lys Arg Ala Arg Pro Gly Glu
            180                 185                 190
```

```
Thr Val Asn Leu Pro Phe Val Met Val Leu Arg Asn Val Tyr Ile Met
        195                 200                 205
```

```
Leu Ile Asn Thr Ile Ile Phe Leu Lys Thr Asn Asn Trp His Ala Gly
    210                 215                 220
```

```
Trp Asn Thr Leu Ser Phe Cys Asn Asp Val Phe Lys Gln Lys Leu Gln
225                 230                 235                 240
```

```
Lys Ser Glu Cys Ile Lys Leu Arg Glu Val Pro Gly Ile Glu Asp Thr
                245                 250                 255
```

```
Leu Phe Ala Val Leu Lys Leu Pro Glu Leu Cys Gly Glu Phe Gly Asn
            260                 265                 270
```

```
Ile Leu Pro Leu Trp Ala Trp Gly Met Glu Thr Leu Ser Asn Cys Ser
        275                 280                 285
```

```
Arg Ser Met Ser Pro Phe Val Leu Ser Leu Glu Gln Thr Pro Gln His
    290                 295                 300
```

Ala Ala Gln Glu Leu Lys Thr Leu Leu Pro Gln Met Thr Pro Ala Asn
305   310   315   320

Met Ser Ser Gly Ala Trp Asn Ile Leu Lys Glu Leu Val Asn Ala Val
                325   330   335

Gln Asp Asn Thr Ser
            340

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Met Phe Ala Leu Val Leu Ala Val Val Ile Leu Pro Leu Trp Thr Thr
1   5   10   15

Ala Asn Lys Ser Tyr Val Thr Pro Thr Pro Ala Thr Arg Ser Ile Gly
                20   25   30

His Met Ser Ala Leu Leu Arg Glu Tyr Ser Asp Arg Asn Met Ser Leu
            35   40   45

Lys Leu Glu Ala Phe Tyr Pro Thr Gly Phe Asp Glu Glu Leu Ile Lys
    50   55   60

Ser Leu His Trp Gly Asn Asp Arg Lys His Val Phe Leu Val Ile Val
65   70   75   80

Lys Val Asn Pro Thr Thr His Glu Gly Asp Val Gly Leu Val Ile Phe
                85   90   95

Pro Lys Tyr Leu Leu Ser Pro Tyr His Phe Lys Ala Glu His Arg Ala
                100   105   110

Pro Phe Pro Ala Gly Arg Phe Gly Phe Leu Ser His Pro Val Thr Pro
            115   120   125

Asp Val Ser Phe Phe Asp Ser Ser Phe Ala Pro Tyr Leu Thr Thr Gln
    130   135   140

His Leu Val Ala Phe Thr Thr Phe Pro Pro Asn Pro Leu Val Trp His
145   150   155   160

Leu Glu Arg Ala Glu Thr Ala Ala Thr Ala Glu Arg Pro Phe Gly Val
                165   170   175

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Ser Leu Leu Pro Ala Arg Pro Thr Val Pro Lys Asn Thr Ile Leu Glu
        180   185   190

His Lys Ala His Phe Ala Thr Trp Asp Ala Leu Ala Arg His Thr Phe
        195   200   205

Phe Ser Ala Glu Ala Ile Ile Thr Asn Ser Thr Leu Arg Ile His Val
        210   215   220

Pro Leu Phe Gly Ser Val Trp Pro Ile Arg Tyr Trp Ala Thr Gly Ser
225   230   235   240

Val Leu Leu Thr Ser Asp Ser Gly Arg Val Glu Val Asn Ile Gly Val
                245   250   255

Gly Phe Met Ser Ser Leu Ile Ser Leu Ser Ser Gly Pro Pro Ile Glu
                260   265   270

Leu Ile Val Val Pro His Thr Val Lys Leu Asn Ala Val Thr Ser Asp
                275   280   285

Thr Thr Trp Phe Gln Leu Asn Pro Pro Gly Pro Asp Pro Gly Pro Ser
        290   295   300

Tyr Arg Val Tyr Leu Leu Gly Arg Gly Leu Asp Met Asn Phe Ser Lys
305   310   315   320

His Ala Thr Val Asp Ile Cys Ala Tyr Pro Glu Glu Ser Leu Asp Tyr
                325   330   335

Arg Tyr His Leu Ser Met Ala His Thr Glu Ala Leu Arg Met Thr Thr
                340   345   350

Lys Ala Asp Gln His Asp Ile Asn Glu Glu Ser Tyr Tyr His Ile Ala
        355   360   365

Ala Arg Ile Ala Thr Ser Ile Phe Ala Leu Ser Glu Met Gly Arg Thr
        370   375   380

Thr Glu Tyr Phe Leu Leu Asp Glu Ile Val Asp Val Gln Tyr Gln Leu
385   390   395   400

Lys Phe Leu Asn Tyr Ile Leu Met Arg Ile Gly Ala Gly Ala His Pro
                405   410   415

Asn Thr Ile Ser Gly Thr Ser Asp Leu Ile Phe Ala Asp Pro Ser Gln
                420   425   430

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Leu His Asp Glu Leu Ser Leu Leu Phe Gly Gln Val Lys Pro Ala Asn
        435   440   445

Val Asp Tyr Phe Ile Ser Tyr Asp Glu Ala Arg Asp Gln Leu Lys Thr
        450   455   460

Ala Tyr Ala Leu Ser Arg Gly Gln Asp His Val Asn Ala Leu Ser Leu
465   470   475   480

Ala Arg Arg Val Ile Met Ser Ile Tyr Lys Gly Leu Leu Val Lys Gln
                485   490   495

Asn Leu Asn Ala Thr Glu Arg Gln Ala Leu Phe Phe Ala Ser Met Ile
            500   505   510

Leu Leu Asn Phe Arg Glu Gly Leu Glu Asn Ser Ser Arg Val Leu Asp
            515   520   525

Gly Arg Thr Thr Leu Leu Leu Met Thr Ser Met Cys Thr Ala Ala His
    530   535   540

Ala Thr Gln Ala Ala Leu Asn Ile Gln Glu Gly Leu Ala Tyr Leu Asn
545   550   555   560

Pro Ser Lys His Met Phe Thr Ile Pro Asn Val Tyr Ser Pro Cys Met
            565   570   575

Gly Ser Leu Arg Thr Asp Leu Thr Glu Glu Ile His Val Met Asn Leu
            580   585   590

Leu Ser Ala Ile Pro Thr Arg Pro Gly Leu Asn Glu Val Leu His Thr
    595   600   605

Gln Leu Asp Glu Ser Glu Ile Phe Asp Ala Ala Phe Lys Thr Met Met
    610   615   620

Ile Phe Thr Thr Trp Thr Ala Lys Asp Leu His Ile Leu His Thr His
625   630   635   640

Val Pro Glu Val Phe Thr Cys Gln Asp Ala Ala Ala Arg Asn Gly Glu
            645   650   655

Tyr Val Leu Ile Leu Pro Ala Val Gln Gly His Ser Tyr Val Ile Thr
            660   665   670

Arg Asn Lys Pro Gln Arg Gly Leu Val Tyr Ser Leu Ala Asp Val Asp
    675   680   685

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Val Tyr Asn Pro Ile Ser Val Val Tyr Leu Ser Arg Asp Thr Cys Val
    690             695             700

Ser Glu His Gly Val Ile Glu Thr Val Ala Leu Pro His Pro Asp Asn
705             710             715             720

Leu Lys Glu Cys Leu Tyr Cys Gly Ser Val Phe Leu Arg Tyr Leu Thr
                725             730             735

Thr Gly Ala Ile Met Asp Ile Ile Ile Asp Ser Lys Asp Thr Glu
                740             745             750

Arg Gln Leu Ala Ala Met Gly Asn Ser Thr Ile Pro Pro Phe Asn Pro
        755             760             765

Asp Met His Gly Asp Asp Ser Lys Ala Val Leu Leu Phe Pro Asn Gly
    770             775             780

Thr Val Val Thr Leu Leu Gly Phe Glu Arg Arg Gln Ala Ile Arg Met
785             790             795             800

Ser Gly Gln Tyr Leu Gly Ala Ser Leu Gly Gly Ala Phe Leu Ala Val
                805             810             815

Val Gly Phe Gly Ile Ile Gly Trp Met Leu Cys Gly Asn Ser Arg Leu
                820             825             830

Arg Glu Tyr Asn Lys Ile Pro Leu Thr
        835             840


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<213>  Varicella zoster

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Met Asn Pro Pro Gln Ala Arg Val Ser Glu Gln Thr Lys Asp Leu Leu
1               5               10              15

Ser Val Met Val Asn Gln His Pro Glu Glu Asp Ala Lys Val Cys Lys
                20              25              30

Ser Ser Asp Asn Ser Pro Leu Tyr Asn Thr Met Val Met Leu Ser Tyr
                35              40              45

Gly Gly Asp Thr Asp Leu Leu Leu Ser Ser Ala Cys Thr Arg Thr Ser
    50              55              60
```

Thr Val Asn Arg Ser Ala Phe Thr Gln His Ser Val Phe Tyr Ile Ile
65   70   75   80

Ser Thr Val Leu Ile Gln Pro Ile Cys Cys Ile Phe Phe Phe Phe Tyr
                85   90   95

Tyr Lys Ala Thr Arg Cys Met Leu Leu Phe Thr Ala Gly Leu Leu Leu
            100   105   110

Thr Ile Leu His His Phe Arg Leu Ile Ile Met Leu Leu Cys Val Tyr
        115   120   125

Arg Asn Ile Arg Ser Asp Leu Leu Pro Leu Ser Thr Ser Gln Gln Leu
    130   135   140

Leu Leu Gly Ile Ile Val Val Thr Arg Thr Met Leu Phe Cys Ile Thr
145   150   155   160

Ala Tyr Tyr Thr Leu Phe Ile Asp Thr Arg Val Phe Phe Leu Ile Thr
            165   170   175

Gly His Leu Gln Ser Glu Val Ile Phe Pro Asp Ser Val Ser Lys Ile
            180   185   190

Leu Pro Val Ser Trp Gly Pro Ser Pro Ala Val Leu Leu Val Met Ala
            195   200   205

Ala Val Ile Tyr Ala Met Asp Cys Leu Val Asp Thr Val Ser Phe Ile
    210   215   220

Gly Pro Arg Val Trp Val Arg Val Met Leu Lys Thr Ser Ile Ser Phe
225   230   235   240

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<213>   Varicella zoster

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Met Thr Thr Val Ser Cys Pro Ala Asn Val Ile Thr Thr Thr Glu Ser
1   5   10   15

Asp Arg Ile Ala Gly Leu Phe Asn Ile Pro Ala Gly Ile Ile Pro Thr
            20   25   30

Gly Asn Val Leu Ser Thr Ile Glu Val Cys Ala His Arg Cys Ile Phe
        35   40   45

Asp Phe Phe Lys Gln Ile Arg Ser Asp Asp Asn Ser Leu Tyr Ser Ala
    50   55   60

Gln Phe Asp Ile Leu Leu Gly Thr Tyr Cys Asn Thr Leu Asn Phe Val
65   70   75   80

Arg Phe Leu Glu Leu Gly Leu Ser Val Ala Cys Ile Cys Thr Lys Phe
            85   90   95

Pro Glu Leu Ala Tyr Val Arg Asp Gly Val Ile Gln Phe Glu Val Gln
            100   105   110

Gln Pro Met Ile Ala Arg Asp Gly Pro His Pro Val Asp Gln Pro Val
        115   120   125

His Asn Tyr Met Val Lys Arg Ile His Lys Arg Ser Leu Ser Ala Ala
    130   135   140

Phe Ala Ile Ala Ser Glu Ala Leu Ser Leu Leu Ser Asn Thr Tyr Val
145   150   155   160

Asp Gly Thr Glu Ile Asp Ser Ser Leu Arg Ile Arg Ala Ile Gln Gln
            165   170   175

Met Ala Arg Asn Leu Arg Thr Val Leu Asp Ser Phe Glu Arg Gly Thr
        180   185   190

Ala Asp Gln Leu Leu Gly Val Leu Leu Glu Lys Ala Pro Pro Leu Ser
        195   200   205

Leu Leu Ser Pro Ile Asn Lys Phe Gln Pro Glu Gly His Leu Asn Arg
    210   215   220

Val Ala Arg Ala Ala Leu Leu Ser Asp Leu Lys Arg Arg Val Cys Ala
225   230   235   240

Asp Met Phe Phe Met Thr Arg His Ala Arg Glu Pro Arg Leu Ile Ser
            245   250   255

Ala Tyr Leu Ser Asp Met Val Ser Cys Thr Gln Pro Ser Val Met Val
            260   265   270

Ser Arg Ile Thr His Thr Asn Thr Arg Gly Arg Gln Val Asp Gly Val
    275   280   285

Leu Val Thr Thr Ala Thr Leu Lys Arg Gln Leu Leu Gln Gly Ile Leu
                            Page 197

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                290                     295                     300
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Gln Ile Asp Asp Thr Ala Ala Asp Val Pro Val Thr Tyr Gly Glu Met
305   310   315   320

Val Leu Gln Gly Thr Asn Leu Val Thr Ala Leu Val Met Gly Lys Ala
                325   330   335

Val Arg Gly Met Asp Asp Val Ala Arg His Leu Leu Asp Ile Thr Asp
                340   345   350

Pro Asn Thr Leu Asn Ile Pro Ser Ile Pro Pro Gln Ser Asn Ser Asp
                355   360   365

Ser Thr Thr Ala Gly Leu Pro Val Asn Ala Arg Val Pro Ala Asp Leu
370   375   380

Val Ile Val Gly Asp Lys Leu Val Phe Leu Glu Ala Leu Glu Arg Arg
385   390   395   400

Val Tyr Gln Ala Thr Arg Val Ala Tyr Pro Leu Ile Gly Asn Ile Asp
                405   410   415

Ile Thr Phe Ile Met Pro Met Gly Val Phe Gln Ala Asn Ser Met Asp
                420   425   430

Arg Tyr Thr Arg His Ala Gly Asp Phe Ser Thr Val Ser Glu Gln Asp
                435   440   445

Pro Arg Gln Phe Pro Pro Gln Gly Ile Phe Phe Tyr Asn Lys Asp Gly
                450   455   460

Ile Leu Thr Gln Leu Thr Leu Arg Asp Ala Met Gly Thr Ile Cys His
465   470   475   480

Ser Ser Leu Leu Asp Val Glu Ala Thr Leu Val Ala Leu Arg Gln Gln
                485   490   495

His Leu Asp Arg Gln Cys Tyr Phe Gly Val Tyr Val Ala Glu Gly Thr
                500   505   510

Glu Asp Thr Leu Asp Val Gln Met Gly Arg Phe Met Glu Thr Trp Ala
                515   520   525

Asp Met Met Pro His His Pro His Trp Val Asn Glu His Leu Thr Ile
                530   535   540

Leu Gln Phe Ile Ala Pro Ser Asn Pro Arg Leu Arg Phe Glu Leu Asn
545   550   555   560

Pro Ala Phe Asp Phe Phe Val Ala Pro Gly Asp Val Asp Leu Pro Gly
                565   570   575

Pro Gln Arg Pro Pro Glu Ala Met Pro Thr Val Asn Ala Thr Leu Arg
            580   585   590

Ile Ile Asn Gly Asn Ile Pro Val Pro Leu Cys Pro Ile Ser Phe Arg
        595   600   605

Asp Cys Arg Gly Thr Gln Leu Gly Leu Gly Arg His Thr Met Thr Pro
    610   615   620

Ala Thr Ile Lys Ala Val Lys Asp Thr Phe Glu Asp Arg Ala Tyr Pro
625   630   635   640

Thr Ile Phe Tyr Met Leu Glu Ala Val Ile His Gly Asn Glu Arg Asn
                645   650   655

Phe Cys Ala Leu Leu Arg Leu Leu Thr Gln Cys Ile Arg Gly Tyr Trp
            660   665   670

Glu Gln Ser His Arg Val Ala Phe Val Asn Asn Phe His Met Leu Met
    675   680   685

Tyr Ile Thr Thr Tyr Leu Gly Asn Gly Glu Leu Pro Glu Val Cys Ile
    690   695   700

Asn Ile Tyr Arg Asp Leu Leu Gln His Val Arg Ala Leu Arg Gln Thr
705   710   715   720

Ile Thr Asp Phe Thr Ile Gln Gly Glu Gly His Asn Gly Glu Thr Ser
            725   730   735

Glu Ala Leu Asn Asn Ile Leu Thr Asp Asp Thr Phe Ile Ala Pro Ile
            740   745   750

Leu Trp Asp Cys Asp Ala Leu Ile Tyr Arg Asp Glu Ala Ala Arg Asp
        755   760   765

Arg Leu Pro Ala Ile Arg Val Ser Gly Arg Asn Gly Tyr Gln Ala Leu
    770   775   780

His Phe Val Asp Met Ala Gly His Asn Phe Gln Arg Arg Asp Asn Val
785   790   795   800

Leu Ile His Gly Arg Pro Val Arg Gly Asp Thr Gly Gln Gly Ile Pro
              805   810   815

Ile Thr Pro His His Asp Arg Glu Trp Gly Ile Leu Ser Lys Ile Tyr
              820   825   830

Tyr Tyr Ile Val Ile Pro Ala Phe Ser Arg Gly Ser Cys Cys Thr Met
          835   840   845

Gly Val Arg Tyr Asp Arg Leu Tyr Pro Ala Leu Gln Ala Val Ile Val
    850   855   860

Pro Glu Ile Pro Ala Asp Glu Glu Ala Pro Thr Thr Pro Glu Asp Pro
865   870   875   880

Arg His Pro Leu His Ala His Gln Leu Val Pro Asn Ser Leu Asn Val
              885   890   895

Tyr Phe His Asn Ala His Leu Thr Val Asp Gly Asp Ala Leu Leu Thr
              900   905   910

Leu Gln Glu Leu Met Gly Asp Met Ala Glu Arg Thr Thr Ala Ile Leu
    915   920   925

Val Ser Ser Ala Pro Asp Ala Gly Ala Ala Thr Ala Thr Thr Arg Asn
    930   935   940

Met Arg Ile Tyr Asp Gly Ala Leu Tyr His Gly Leu Ile Met Met Ala
945   950   955   960

Tyr Gln Ala Tyr Asp Glu Thr Ile Ala Thr Gly Thr Phe Phe Tyr Pro
              965   970   975

Val Pro Val Asn Pro Leu Phe Ala Cys Pro Glu His Leu Ala Ser Leu
              980   985   990

Arg Gly Met Thr Asn Ala Arg Arg Val Leu Ala Lys Met Val Pro Pro
          995   1000   1005

Ile Pro Pro Phe Leu Gly Ala Asn His His Ala Thr Ile Arg Gln
    1010   1015   1020

Pro Val Ala Tyr His Val Thr His Ser Lys Ser Asp Phe Asn Thr
    1025   1030   1035

Leu Thr Tyr Ser Leu Leu Gly Gly Tyr Phe Lys Phe Thr Pro Ile
    1040   1045   1050

Page 200

Ser Leu Thr His Gln Leu Arg Thr Gly Phe His Pro Gly Ile Ala
    1055   1060   1065

Phe Thr Val Val Arg Gln Asp Arg Phe Ala Thr Glu Gln Leu Leu
    1070   1075   1080

Tyr Ala Glu Arg Ala Ser Glu Ser Tyr Phe Val Gly Gln Ile Gln
    1085   1090   1095

Val His His His Asp Ala Ile Gly Gly Val Asn Phe Thr Leu Thr
    1100   1105   1110

Gln Pro Arg Ala His Val Asp Leu Gly Val Gly Tyr Thr Ala Val
    1115   1120   1125

Cys Ala Thr Ala Ala Leu Arg Cys Pro Leu Thr Asp Met Gly Asn
    1130   1135   1140

Thr Ala Gln Asn Leu Phe Phe Ser Arg Gly Gly Val Pro Met Leu
    1145   1150   1155

His Asp Asn Val Thr Glu Ser Leu Arg Arg Ile Thr Ala Ser Gly
    1160   1165   1170

Gly Arg Leu Asn Pro Thr Glu Pro Leu Pro Ile Phe Gly Gly Leu
    1175   1180   1185

Arg Pro Ala Thr Ser Ala Gly Ile Ala Arg Gly Gln Ala Ser Val
    1190   1195   1200

Cys Glu Phe Val Ala Met Pro Val Ser Thr Asp Leu Gln Tyr Phe
    1205   1210   1215

Arg Thr Ala Cys Asn Pro Arg Gly Arg Ala Ser Gly Met Leu Tyr
    1220   1225   1230

Met Gly Asp Arg Asp Ala Asp Ile Glu Ala Ile Met Phe Asp His
    1235   1240   1245

Thr Gln Ser Asp Val Ala Tyr Thr Asp Arg Ala Thr Leu Asn Pro
    1250   1255   1260

Trp Ala Ser Gln Lys His Ser Tyr Gly Asp Arg Leu Tyr Asn Gly
    1265   1270   1275

Thr Tyr Asn Leu Thr Gly Ala Ser Pro Ile Tyr Ser Pro Cys Phe

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         1280                 1285                    1290
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Lys Phe Phe Thr Pro Ala Glu Val Asn Thr Asn Cys Asn Thr Leu
    1295   1300   1305

Asp Arg Leu Leu Met Glu Ala Lys Ala Val Ala Ser Gln Ser Ser
    1310   1315   1320

Thr Asp Thr Glu Tyr Gln Phe Lys Arg Pro Pro Gly Ser Thr Glu
    1325   1330   1335

Met Thr Gln Asp Pro Cys Gly Leu Phe Gln Glu Ala Tyr Pro Pro
    1340   1345   1350

Leu Cys Ser Ser Asp Ala Ala Met Leu Arg Thr Ala His Ala Gly
    1355   1360   1365

Glu Thr Gly Ala Asp Glu Val His Leu Ala Gln Tyr Leu Ile Arg
    1370   1375   1380

Asp Ala Ser Pro Leu Arg Gly Cys Leu Pro Leu Pro Arg
    1385   1390   1395

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<213>   Varicella zoster

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Met Ala Met Pro Phe Glu Ile Glu Val Leu Leu Pro Gly Glu Leu Ser
1   5   10   15

Pro Ala Glu Thr Ser Ala Leu Gln Lys Cys Glu Gly Lys Ile Ile Thr
                20   25   30

Phe Ser Thr Leu Arg His Arg Ala Ser Leu Val Asp Ile Ala Leu Ser
            35   40   45

Ser Tyr Tyr Ile Asn Gly Ala Pro Pro Asp Thr Leu Ser Leu Leu Glu
        50   55   60

Ala Tyr Arg Met Arg Phe Ala Ala Val Ile Thr Arg Val Ile Pro Gly
65   70   75   80

Lys Leu Leu Ala His Ala Ile Gly Val Gly Thr Pro Thr Pro Gly Leu
                85   90   95

Phe Ile Gln Asn Thr Ser Pro Val Asp Leu Cys Asn Gly Asp Tyr Ile

Cys Leu Leu Pro Pro Val Phe Gly Ser Ala Asp Ser Ile Arg Leu Asp
        115   120   125

Ser Val Gly Leu Glu Ile Val Phe Pro Leu Thr Ile Pro Gln Thr Leu
        130   135   140

Met Arg Glu Ile Ile Ala Lys Val Val Ala Arg Ala Val Glu Arg Thr
145   150   155   160

Ala Ala Gly Ala Gln Ile Leu Pro His Glu Val Leu Arg Gly Ala Asp
                165   170   175

Val Ile Cys Tyr Asn Gly Arg Arg Tyr Glu Leu Glu Thr Asn Leu Gln
                180   185   190

His Arg Asp Gly Ser Asp Ala Ala Ile Arg Thr Leu Val Leu Asn Leu
                195   200   205

Met Phe Ser Ile Asn Glu Gly Cys Leu Leu Leu Ala Leu Ile Pro
        210   215   220

Thr Leu Leu Val Gln Gly Ala His Asp Gly Tyr Val Asn Leu Leu Ile
225   230   235   240

Gln Thr Ala Asn Cys Val Arg Glu Thr Gly Gln Leu Ile Asn Ile Pro
                245   250   255

Pro Met Pro Arg Ile Gln Asp Gly His Arg Arg Phe Pro Ile Tyr Glu
                260   265   270

Thr Ile Ser Ser Trp Ile Ser Thr Ser Ser Arg Leu Gly Asp Thr Leu
        275   280   285

Gly Thr Arg Ala Ile Leu Arg Val Cys Val Phe Asp Gly Pro Ser Thr
        290   295   300

Val His Pro Gly Asp Arg Thr Ala Val Ile Gln Val
305   310   315

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<213>   Varicella zoster

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Met Glu Ala His Leu Ala Asn Glu Thr Lys His Ala Leu Trp His Asn
                        Page 203

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1                    5                    10                   15

Asp His Thr Lys Gly Leu Leu His Val Val Ile Pro Asn Ala Gly Leu
            20                  25                  30

Ile Ala Ala Gly Ile Asp Pro Ala Leu Leu Ile Leu Lys Lys Pro Gly
            35                  40                  45

Gln Arg Phe Lys Val Glu Val Gln Thr Arg Tyr His Ala Thr Gly Gln
            50                  55                  60

Cys Glu Pro Trp Cys Gln Val Phe Ala Ala Tyr Ile Pro Asp Asn Ala
65                  70                  75                  80

Leu Thr Asn Leu Leu Ile Pro Lys Thr Glu Pro Phe Val Ser His Val
            85                  90                  95

Phe Ser Ala Thr His Asn Ser Gly Gly Leu Ile Leu Ser Leu Pro Val
            100                 105                 110

Tyr Leu Ser Pro Gly Leu Phe Phe Asp Ala Phe Asn Val Val Ala Ile
            115                 120                 125

Arg Ile Asn Thr Gly Asn Arg Lys His Arg Asp Ile Cys Ile Met Tyr
            130                 135                 140

Ala Glu Leu Ile Pro Asn Gly Thr Arg Tyr Phe Ala Asp Gly Gln Arg
145                 150                 155                 160

Val Leu Leu Leu Cys Lys Gln Leu Ile Ala Tyr Ile Arg Cys Thr Pro
                165                 170                 175

Arg Leu Ala Ser Ser Ile Lys Ile Tyr Ala Glu His Met Val Ala Ala
                180                 185                 190

Met Gly Glu Ser His Thr Ser Asn Gly Asp Asn Ile Gly Pro Val Ser
                195                 200                 205

Ser Ile Ile Asp Leu Asp Arg Gln Leu Thr Ser Gly Gly Ile Asp Asp
            210                 215                 220

Ser Pro Ala Glu Thr Arg Ile Gln Glu Asn Asn Arg Asp Val Leu Glu
225                 230                 235                 240

Leu Ile Lys Arg Ala Val Asn Ile Val Asn Ser Arg His Pro Val Arg
                245                 250                 255
```

Pro Ser Ser Ser Arg Val Ala Ser Gly Leu Leu Gln Ser Ala Lys Gly
        260   265   270

His Gly Ala Gln Thr Ser Asn Thr Asp Pro Ile Asn Asn Gly Ser Phe
        275   280   285

Asp Gly Val Leu Glu Pro Pro Gly Gln Gly Arg Phe Thr Gly Lys Lys
        290   295   300

Asn Asn Ser Ser Ala Ser Ile Pro Pro Leu Gln Asp Val Leu Leu Phe
305   310   315   320

Thr Pro Ala Ser Thr Glu Pro Gln Ser Leu Met Glu Trp Phe Asp Ile
        325   330   335

Cys Tyr Ala Gln Leu Val Ser Gly Asp Thr Pro Ala Asp Phe Trp Lys
        340   345   350

Arg Arg Pro Leu Ser Ile Val Pro Arg His Tyr Ala Glu Ser Pro Ser
        355   360   365

Pro Leu Ile Val Val Ser Tyr Asn Gly Ser Ser Ala Trp Gly Gly Arg
        370   375   380

Ile Thr Gly Ser Pro Ile Leu Tyr His Ser Ala Gln Ala Ile Ile Asp
385   390   395   400

Ala Ala Cys Ile Asn Ala Arg Val Asp Asn Pro Gln Ser Leu His Val
        405   410   415

Thr Ala Arg Gln Glu Leu Val Ala Arg Leu Pro Phe Leu Ala Asn Val
        420   425   430

Leu Asn Asn Gln Thr Pro Leu Pro Ala Phe Lys Pro Gly Ala Glu Met
        435   440   445

Phe Leu Asn Gln Val Phe Lys Gln Ala Cys Val Thr Ser Leu Thr Gln
        450   455   460

Gly Leu Ile Thr Glu Leu Gln Thr Asn Pro Thr Leu Gln Gln Leu Met
465   470   475   480

Glu Tyr Asp Ile Ala Asp Ser Ser Gln Thr Val Ile Asp Glu Ile Val
        485   490   495

Ala Arg Thr Pro Asp Leu Ile Gln Thr Ile Val Ser Val Leu Thr Glu
        500   505   510

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Met Ser Met Asp Ala Phe Tyr Asn Ser Ser Leu Met Tyr Ala Val Leu
        515             520             525

Ala Tyr Leu Ser Ser Val Tyr Thr Arg Pro Gln Gly Gly Gly Tyr Ile
        530             535             540

Pro Tyr Leu His Ala Ser Phe Pro Cys Trp Leu Gly Asn Arg Ser Ile
545             550             555             560

Tyr Leu Phe Asp Tyr Tyr Asn Ser Gly Gly Glu Ile Leu Lys Leu Ser
            565             570             575

Lys Val Pro Val Pro Val Ala Leu Glu Lys Val Gly Ile Gly Asn Ser
            580             585             590

Thr Gln Leu Arg Gly Lys Phe Ile Arg Ser Ala Asp Ile Val Asp Ile
        595             600             605

Gly Ile Cys Ser Lys Tyr Leu Pro Gly Gln Cys Tyr Ala Tyr Ile Cys
    610             615             620

Leu Gly Phe Asn Gln Gln Leu Gln Ser Ile Leu Val Leu Pro Gly Gly
625             630             635             640

Phe Ala Ala Cys Phe Cys Ile Thr Asp Thr Leu Gln Ala Ala Leu Pro
            645             650             655

Ala Ser Leu Ile Gly Pro Ile Leu Asp Arg Phe Cys Phe Ser Ile Pro
            660             665             670

Asn Pro His Lys
        675
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<213>   Varicella zoster

<400>   31
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Met Glu Leu Gln Arg Ile Phe Pro Leu Tyr Thr Ala Thr Gly Ala Ala
1               5               10              15

Arg Lys Leu Thr Pro Glu Ala Val Gln Arg Leu Cys Asp Ala Leu Thr
            20              25              30

Leu Asp Met Gly Leu Trp Lys Ser Ile Leu Thr Asp Pro Arg Val Lys
        35              40              45
```

```
Ile Met Arg Ser Thr Ala Phe Ile Thr Leu Arg Ile Ala Pro Phe Ile
    50              55              60

Pro Leu Gln Thr Asp Thr Thr Asn Ile Ala Val Val Val Ala Thr Ile
65              70              75              80

Tyr Ile Thr Arg Pro Arg Gln Met Asn Leu Pro Pro Lys Thr Phe His
                85              90              95

Val Ile Val Asn Phe Asn Tyr Glu Val Ser Tyr Ala Met Thr Ala Thr
            100             105             110

Leu Arg Ile Tyr Pro Val Glu Asn Ile Asp His Val Phe Gly Ala Thr
        115             120             125

Phe Lys Asn Pro Ile Ala Tyr Pro Leu Pro Thr Ser Ile Pro Asp Pro
    130             135             140

Arg Ala Asp Pro Thr Pro Ala Asp Leu Thr Pro Thr Pro Asn Leu Ser
145             150             155             160

Asn Tyr Leu Gln Pro Pro Arg Leu Pro Lys Asn Pro Tyr Ala Cys Lys
            165             170             175

Val Ile Ser Pro Gly Val Trp Trp Ser Asp Glu Arg Arg Arg Leu Tyr
            180             185             190

Val Leu Ala Met Glu Pro Asn Leu Ile Gly Leu Cys Pro Ala Gly Trp
        195             200             205

His Ala Arg Ile Leu Gly Ser Val Leu Asn Arg Leu Leu Ser His Ala
210             215             220

Asp Gly Cys Asp Glu Cys Asn His Arg Val His Val Gly Ala Leu Tyr
225             230             235             240

Ala Leu Pro His Val Thr Asn His Ala Glu Gly Cys Val Cys Trp Ala
                245             250             255

Pro Cys Met Trp Arg Lys Ala Gly Gln Arg Glu Leu Lys Val Glu Val
            260             265             270

Asp Ile Gly Ala Thr Gln Val Leu Phe Val Asp Val Thr Thr Cys Ile
        275             280             285

Arg Ile Thr Ser Thr Lys Asn Pro Arg Ile Thr Ala Asn Leu Gly Asp
290             295             300
```

```
Val Ile Ala Gly Thr Asn Ala Ser Gly Leu Ser Val Pro Val Asn Ser
305                 310                 315                 320

Ser Gly Trp Gln Leu Tyr Met Phe Gly Glu Thr Leu Ser Arg Ala Ile
                325                 330                 335

Ile Asn Gly Cys Gly Leu Leu Gln Arg Ile Cys Phe Pro Glu Thr Gln
                340                 345                 350

Arg Leu Ser Gly Glu Pro Glu Pro Thr Thr Thr
            355                 360
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<210>   32
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<213>   Varicella zoster

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Met Ser Gly His Thr Pro Thr Tyr Ala Ser His Arg Arg Asn Arg Val
1                   5                   10                  15

Lys Leu Val Glu Ala His Asn Arg Ala Gly Leu Phe Lys Glu Arg Thr
                20                  25                  30

Leu Asp Leu Ile Arg Gly Gly Ala Ser Val Gln Asp Pro Ala Phe Val
            35                  40                  45

Tyr Ala Phe Thr Ala Ala Lys Glu Ala Cys Ala Asp Leu Asn Asn Gln
        50                  55                  60

Leu Arg Ser Ala Ala Arg Ile Ala Ser Val Glu Gln Lys Ile Arg Asp
65                  70                  75                  80

Ile Gln Ser Lys Val Glu Glu Gln Thr Ser Ile Gln Gln Ile Leu Asn
                85                  90                  95

Thr Asn Arg Arg Tyr Ile Ala Pro Asp Phe Ile Arg Gly Leu Asp Lys
                100                 105                 110

Thr Glu Asp Asp Asn Thr Asp Asn Ile Asp Arg Leu Glu Asp Ala Val
            115                 120                 125

Gly Pro Asn Ile Glu His Glu Asn His Thr Trp Phe Gly Glu Asp Asp
        130                 135                 140

Glu Ala Leu Leu Thr Gln Trp Met Leu Thr Thr His Pro Pro Thr Ser
145                 150                 155                 160
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Lys Tyr Leu Gln Leu Gln Asp Leu Cys Val Pro Thr Thr Ile Pro Thr
              165   170   175

Asp Met Asn Gln Met Gln Pro Gln Pro Ile Ser Lys Asn Glu Asn Pro
              180   185   190

Pro Thr Pro His Thr Asp Val
              195

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Met Ala Arg Ser Gly Leu Asp Arg Ile Asp Ile Ser Pro Gln Pro Ala
1   5   10   15

Lys Lys Ile Ala Arg Val Gly Gly Leu Gln His Pro Phe Val Lys Thr
              20   25   30

Asp Ile Asn Thr Ile Asn Val Glu His His Phe Ile Asp Thr Leu Gln
              35   40   45

Lys Thr Ser Pro Asn Met Asp Cys Arg Gly Met Thr Ala Gly Ile Phe
     50   55   60

Ile Arg Leu Ser His Met Tyr Lys Ile Leu Thr Thr Leu Glu Ser Pro
65   70   75   80

Asn Asp Val Thr Tyr Thr Thr Pro Gly Ser Thr Asn Ala Leu Phe Phe
              85   90   95

Lys Thr Ser Thr Gln Pro Gln Glu Pro Arg Pro Glu Glu Leu Ala Ser
              100   105   110

Lys Leu Thr Gln Asp Asp Ile Lys Arg Ile Leu Leu Thr Ile Glu Ser
              115   120   125

Glu Thr Arg Gly Gln Gly Asp Asn Ala Ile Trp Thr Leu Leu Arg Arg
     130   135   140

Asn Leu Ile Thr Ala Ser Thr Leu Lys Trp Ser Val Ser Gly Pro Val
145   150   155   160

Ile Pro Pro Gln Trp Phe Tyr His His Asn Thr Thr Asp Thr Tyr Gly
              165   170   175

Asp Ala Ala Ala Met Ala Phe Gly Lys Thr Asn Glu Pro Ala Ala Arg
            180   185   190

Ala Ile Val Glu Ala Leu Phe Ile Asp Pro Ala Asp Ile Arg Thr Pro
        195   200   205

Asp His Leu Thr Pro Glu Ala Thr Thr Lys Phe Phe Asn Phe Asp Met
    210   215   220

Leu Asn Thr Lys Ser Pro Ser Leu Leu Val Gly Thr Pro Arg Ile Gly
225   230   235   240

Thr Tyr Glu Cys Gly Leu Leu Ile Asp Val Arg Thr Gly Leu Ile Gly
            245   250   255

Ala Ser Leu Asp Val Leu Val Cys Asp Arg Asp Pro Leu Thr Gly Thr
            260   265   270

Leu Asn Pro His Pro Ala Glu Thr Asp Ile Ser Phe Phe Glu Ile Lys
            275   280   285

Cys Arg Ala Lys Tyr Leu Phe Asp Pro Asp Asp Lys Asn Asn Pro Leu
    290   295   300

Gly Arg Thr Tyr Thr Thr Leu Ile Asn Arg Pro Thr Met Ala Asn Leu
305   310   315   320

Arg Asp Phe Leu Tyr Thr Ile Lys Asn Pro Cys Val Ser Phe Phe Gly
            325   330   335

Pro Ser Ala Asn Pro Ser Thr Arg Glu Ala Leu Ile Thr Asp His Val
            340   345   350

Glu Trp Lys Arg Leu Gly Phe Lys Gly Gly Arg Ala Leu Thr Glu Leu
        355   360   365

Asp Ala His His Leu Gly Leu Asn Arg Thr Ile Ser Ser Arg Val Trp
    370   375   380

Val Phe Asn Asp Pro Asp Ile Gln Lys Gly Thr Ile Thr Thr Ile Ala
385   390   395   400

Trp Ala Thr Gly Asp Thr Ala Leu Gln Ile Pro Val Phe Ala Asn Pro
            405   410   415

Arg His Ala Asn Phe Lys Gln Ile Ala Val Gln Thr Tyr Val Leu Ser
                        Page 210

          420   425   430

Gly Tyr Phe Pro Ala Leu Lys Leu Arg Pro Phe Leu Val Thr Phe Ile
        435   440   445

Gly Arg Val Arg Arg Pro His Glu Val Gly Val Pro Leu Arg Val Asp
        450   455   460

Thr Gln Ala Ala Ala Ile Tyr Glu Tyr Asn Trp Pro Thr Ile Pro Pro
465   470   475   480

His Cys Ala Val Pro Val Ile Ala Val Leu Thr Pro Ile Glu Val Asp
                485   490   495

Val Pro Arg Val Thr Gln Ile Leu Lys Asp Thr Gly Asn Asn Ala Ile
                500   505   510

Thr Ser Ala Leu Arg Ser Leu Arg Trp Asp Asn Leu His Pro Ala Val
        515   520   525

Glu Glu Glu Ser Val Asp Cys Ala Asn Gly Thr Thr Ser Leu Leu Arg
        530   535   540

Ala Thr Glu Lys Pro Leu Leu
545   550

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<213>   Varicella zoster

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Met Ser Pro Asn Thr Gly Glu Ser Asn Ala Ala Val Tyr Ala Ser Ser
1   5   10   15

Thr Gln Leu Ala Arg Ala Leu Tyr Gly Gly Asp Leu Val Ser Trp Ile
            20   25   30

Lys His Thr His Pro Gly Ile Ser Leu Glu Leu Gln Leu Asp Val Pro
        35   40   45

Val Lys Leu Ile Lys Pro Gly Met Ser Gln Thr Arg Pro Val Thr Val
        50   55   60

Val Arg Ala Pro Met Gly Ser Gly Lys Thr Thr Ala Leu Leu Glu Trp
65   70   75   80

Leu Gln His Ala Leu Lys Ala Asp Ile Ser Val Leu Val Val Ser Cys
                            Page 211

Arg Arg Ser Phe Thr Gln Thr Leu Ile Gln Arg Phe Asn Asp Ala Gly
            100   105   110

Leu Ser Gly Phe Val Thr Tyr Leu Thr Ser Glu Thr Tyr Ile Met Gly
            115   120   125

Phe Lys Arg Leu Ile Val Gln Leu Glu Ser Leu His Arg Val Ser Ser
    130   135   140

Glu Ala Ile Asp Ser Tyr Asp Val Leu Ile Leu Asp Glu Val Met Ser
145   150   155   160

Val Ile Gly Gln Leu Tyr Ser Pro Thr Met Arg Arg Leu Ser Ala Val
            165   170   175

Asp Ser Leu Leu Tyr Arg Leu Leu Asn Arg Cys Ser Gln Ile Ile Ala
            180   185   190

Met Asp Ala Thr Val Asn Ser Gln Phe Ile Asp Leu Ile Ser Gly Leu
            195   200   205

Arg Gly Asp Glu Asn Ile His Thr Ile Val Cys Thr Tyr Ala Gly Val
    210   215   220

Gly Phe Ser Gly Arg Thr Cys Thr Ile Leu Arg Asp Met Gly Ile Asp
225   230   235   240

Thr Leu Val Arg Val Ile Lys Arg Ser Pro Glu His Glu Asp Val Arg
            245   250   255

Thr Ile His Gln Leu Arg Gly Thr Phe Phe Asp Glu Leu Ala Leu Arg
            260   265   270

Leu Gln Cys Gly His Asn Ile Cys Ile Phe Ser Ser Thr Leu Ser Phe
            275   280   285

Ser Glu Leu Val Ala Gln Phe Cys Ala Ile Phe Thr Asp Ser Ile Leu
    290   295   300

Ile Leu Asn Ser Thr Arg Pro Leu Cys Asn Val Asn Glu Trp Lys His
305   310   315   320

Phe Arg Val Leu Val Tyr Thr Thr Val Val Thr Val Gly Leu Ser Phe
            325   330   335

Asp Met Ala His Phe His Ser Met Phe Ala Tyr Ile Lys Pro Met Ser
                340   345   350

Tyr Gly Pro Asp Met Val Ser Val Tyr Gln Ser Leu Gly Arg Val Arg
        355   360   365

Leu Leu Leu Leu Asn Glu Val Leu Met Tyr Val Asp Gly Ser Arg Thr
    370   375   380

Arg Cys Gly Pro Leu Phe Ser Pro Met Leu Leu Asn Phe Thr Ile Ala
385   390   395   400

Asn Lys Phe Gln Trp Phe Pro Thr His Thr Gln Ile Thr Asn Lys Leu
                405   410   415

Cys Cys Ala Phe Arg Gln Arg Cys Ala Asn Ala Phe Thr Arg Ser Asn
            420   425   430

Thr His Leu Phe Ser Arg Phe Lys Tyr Lys His Leu Phe Glu Arg Cys
        435   440   445

Ser Leu Trp Ser Leu Ala Asp Ser Ile Asn Ile Leu Gln Thr Leu Leu
    450   455   460

Ala Ser Asn Gln Ile Leu Val Val Leu Asp Gly Met Gly Pro Ile Thr
465   470   475   480

Asp Val Ser Pro Val Gln Phe Cys Ala Phe Ile His Asp Leu Arg His
            485   490   495

Ser Ala Asn Ala Val Ala Ser Cys Met Arg Ser Leu Arg Gln Asp Asn
            500   505   510

Asp Ser Cys Leu Thr Asp Phe Gly Pro Ser Gly Phe Met Ala Asp Asn
        515   520   525

Ile Thr Ala Phe Met Glu Lys Tyr Leu Met Glu Ser Ile Asn Thr Glu
    530   535   540

Glu Gln Ile Lys Val Phe Lys Ala Leu Ala Cys Pro Ile Glu Gln Pro
545   550   555   560

Arg Leu Val Asn Thr Ala Ile Leu Gly Ala Cys Ile Arg Ile Pro Glu
            565   570   575

Ala Leu Glu Ala Phe Asp Val Phe Gln Lys Ile Tyr Thr His Tyr Ala
        580   585   590

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Ser Gly Trp Phe Pro Val Leu Asp Lys Thr Gly Glu Phe Ser Ile Ala
        595             600             605

Thr Ile Thr Thr Ala Pro Asn Leu Thr Thr His Trp Glu Leu Phe Arg
    610             615             620

Arg Cys Ala Tyr Ile Ala Lys Thr Leu Lys Trp Asn Pro Ser Thr Glu
625             630             635             640

Gly Cys Val Thr Gln Val Leu Asp Thr Asp Ile Asn Thr Leu Phe Asn
            645             650             655

Gln His Gly Asp Ser Leu Ala Gln Leu Ile Phe Glu Val Met Arg Cys
            660             665             670

Asn Val Thr Asp Ala Lys Ile Ile Leu Asn Arg Pro Val Trp Arg Thr
        675             680             685

Thr Gly Phe Leu Asp Gly Cys His Asn Gln Cys Phe Arg Pro Ile Pro
    690             695             700

Thr Lys His Glu Tyr Asn Ile Ala Leu Phe Arg Leu Ile Trp Glu Gln
705             710             715             720

Leu Phe Gly Ala Arg Val Thr Lys Ser Thr Gln Thr Phe Pro Gly Ser
            725             730             735

Thr Arg Val Lys Asn Leu Lys Lys Lys Asp Leu Glu Thr Leu Leu Asp
            740             745             750

Ser Ile Asn Val Asp Arg Ser Ala Cys Arg Thr Tyr Arg Gln Leu Tyr
    755             760             765

Asn Leu Leu Met Ser Gln Arg His Ser Phe Ser Gln Gln Arg Tyr Lys
    770             775             780

Ile Thr Ala Pro Ala Trp Ala Arg His Val Tyr Phe Gln Ala His Gln
785             790             795             800

Met His Leu Ala Pro His Ala Glu Ala Met Leu Gln Leu Ala Leu Ser
            805             810             815

Glu Leu Ser Pro Gly Ser Trp Pro Arg Ile Asn Gly Ala Val Asn Phe
            820             825             830

Glu Ser Leu
        835
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Met Asp Ala Thr Gln Ile Thr Leu Val Arg Glu Ser Gly His Ile Cys
1   5   10   15

Ala Ala Ser Ile Tyr Thr Ser Trp Thr Gln Ser Gly Gln Leu Thr Gln
            20   25   30

Asn Gly Leu Ser Val Leu Tyr Tyr Leu Leu Cys Lys Asn Ser Cys Gly
        35   40   45

Lys Tyr Val Pro Lys Phe Ala Glu Ile Thr Val Gln Gln Glu Asp Leu
    50   55   60

Cys Arg Tyr Ser Arg His Gly Gly Ser Val Ser Ala Ala Thr Phe Ala
65   70   75   80

Ser Ile Cys Arg Ala Ala Ser Ser Ala Ala Leu Asp Ala Trp Pro Leu
                85   90   95

Glu Pro Leu Gly Asn Ala Asp Thr Trp Arg Cys Leu His Gly Thr Ala
            100   105   110

Leu Ala Thr Leu Arg Arg Val Leu Gly Phe Lys Ser Phe Tyr Ser Pro
            115   120   125

Val Thr Phe Glu Thr Asp Thr Asn Thr Gly Leu Leu Leu Lys Thr Ile
    130   135   140

Pro Asp Glu His Ala Leu Asn Asn Asp Asn Thr Pro Ser Thr Gly Val
145   150   155   160

Leu Arg Ala Asn Phe Pro Val Ala Ile Asp Val Ser Ala Val Ser Ala
                165   170   175

Cys Asn Ala His Thr Gln Gly Thr Ser Leu Ala Tyr Ala Arg Leu Thr
                180   185   190

Ala Leu Lys Ser Asn Gly Asp Thr Gln Gln Gln Thr Pro Leu Asp Val
            195   200   205

Glu Val Ile Thr Pro Lys Ala Tyr Ile Arg Arg Lys Tyr Lys Ser Thr
    210   215   220

Phe Ser Pro Pro Ile Glu Arg Glu Gly Gln Thr Ser Asp Leu Phe Asn
225   230   235   240

Leu Glu Glu Arg Arg Leu Val Leu Ser Gly Asn Arg Ala Ile Val Val
                245   250   255

Arg Val Leu Leu Pro Cys Tyr Phe Asp Cys Leu Thr Thr Asp Ser Thr
            260   265   270

Val Thr Ser Ser Leu Ser Ile Leu Ala Thr Tyr Arg Leu Trp Tyr Ala
        275   280   285

Ala Ala Phe Gly Lys Pro Gly Val Val Arg Pro Ile Phe Ala Tyr Leu
    290   295   300

Gly Pro Glu Leu Asn Pro Lys Gly Glu Asp Arg Asp Tyr Phe Cys Thr
305   310   315   320

Val Gly Phe Pro Gly Trp Thr Thr Leu Arg Thr Gln Thr Pro Ala Val
            325   330   335

Glu Ser Ile Arg Thr Ala Thr Glu Met Tyr Met Glu Thr Asp Gly Leu
            340   345   350

Trp Pro Val Thr Gly Ile Gln Ala Phe His Tyr Leu Ala Pro Trp Gly
        355   360   365

Gln His Pro Pro Leu Pro Pro Arg Val Gln Asp Leu Ile Gly Gln Ile
    370   375   380

Pro Gln Asp Thr Gly His Ala Asp Ala Thr Val Asn Trp Asp Ala Gly
385   390   395   400

Arg Ile Ser Thr Val Phe Lys Gln Pro Val Gln Leu Gln Asp Arg Trp
            405   410   415

Met Ala Lys Phe Asp Phe Ser Ala Phe Phe Pro Thr Ile Tyr Cys Ala
            420   425   430

Met Phe Pro Met His Phe Arg Leu Gly Lys Ile Val Leu Ala Arg Met
        435   440   445

Arg Arg Gly Met Gly Cys Leu Lys Pro Ala Leu Val Ser Phe Phe Gly
    450   455   460

Gly Leu Arg His Ile Leu Pro Ser Ile Tyr Lys Ala Ile Ile Phe Ile
                        Page 216

Ala Asn Glu Ile Ser Leu Cys Val Glu Gln Thr Ala Leu Glu Gln Gly
                    485   490   495

Phe Ala Ile Cys Thr Tyr Ile Lys Asp Gly Phe Trp Gly Ile Phe Thr
                500   505   510

Asp Leu His Thr Arg Asn Val Cys Ser Asp Gln Ala Arg Cys Ser Ala
            515   520   525

Leu Asn Leu Ala Ala Thr Cys Glu Arg Ala Val Thr Gly Leu Leu Arg
        530   535   540

Ile Gln Leu Gly Leu Asn Phe Thr Pro Ala Met Glu Pro Val Leu Arg
545   550   555   560

Val Glu Gly Val Tyr Thr His Ala Phe Thr Trp Cys Thr Thr Gly Ser
                565   570   575

Trp Leu Trp Asn Leu Gln Thr Asn Thr Pro Pro Asp Leu Val Gly Val
                580   585   590

Pro Trp Arg Ser Gln Ala Ala Arg Asp Leu Lys Glu Arg Leu Ser Gly
            595   600   605

Leu Leu Cys Thr Ala Thr Lys Ile Arg Glu Arg Ile Gln Glu Asn Cys
        610   615   620

Ile Trp Asp His Val Leu Tyr Asp Ile Trp Ala Gly Gln Val Val Glu
625   630   635   640

Ala Ala Arg Lys Thr Tyr Val Asp Phe Phe Glu His Val Phe Asp Arg
                645   650   655

Arg Tyr Thr Pro Val Tyr Trp Ser Leu Gln Glu Gln Asn Ser Glu Thr
                660   665   670

Lys Ala Ile Pro Ala Ser Tyr Leu Thr Tyr Gly His Met Gln Asp Lys
            675   680   685

Asp Tyr Lys Pro Arg Gln Ile Ile Met Val Arg Asn Pro Asn Pro His
        690   695   700

Gly Pro Pro Thr Val Val Tyr Trp Glu Leu Leu Pro Ser Cys Ala Cys
705   710   715   720

Ile Pro Pro Ile Asp Cys Ala Ala His Leu Lys Pro Leu Ile His Thr
              725   730   735

Phe Val Thr Ile Ile Asn His Leu Leu Asp Ala His Asn Asp Phe Ser
              740   745   750

Ser Pro Ser Leu Lys Phe Thr Asp Asp Pro Leu Ala Ser Tyr Asn Phe
              755   760   765

Leu Phe Leu
    770

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Met Lys Arg Ser Ile Ser Val Asp Ser Ser Ser Pro Lys Asn Val Phe
1   5   10   15

Asn Pro Glu Thr Pro Asn Gly Phe Asp Asp Ser Val Tyr Leu Asn Phe
              20   25   30

Thr Ser Met His Ser Ile Gln Pro Ile Leu Ser Arg Ile Arg Glu Leu
        35   40   45

Ala Ala Ile Thr Ile Pro Lys Glu Arg Val Pro Arg Leu Cys Trp Phe
    50   55   60

Lys Gln Leu Leu Glu Leu Gln Ala Pro Pro Glu Met Gln Arg Asn Glu
65   70   75   80

Leu Pro Phe Ser Val Tyr Leu Ile Ser Gly Asn Ala Gly Ser Gly Lys
              85   90   95

Ser Thr Cys Ile Gln Thr Leu Asn Glu Ala Ile Asp Cys Ile Ile Thr
              100   105   110

Gly Ser Thr Arg Val Ala Ala Gln Asn Val His Ala Lys Leu Ser Thr
        115   120   125

Ala Tyr Ala Ser Arg Pro Ile Asn Thr Ile Phe His Glu Phe Gly Phe
    130   135   140

Arg Gly Asn His Ile Gln Ala Gln Leu Gly Arg Tyr Ala Tyr Asn Trp
145   150   155   160

Page 218

Thr Thr Thr Pro Pro Ser Ile Glu Asp Leu Gln Lys Arg Asp Ile Val
          165   170   175

Tyr Tyr Trp Glu Val Leu Ile Asp Ile Thr Lys Arg Val Phe Gln Met
          180   185   190

Gly Asp Asp Gly Arg Gly Gly Thr Ser Thr Phe Lys Thr Leu Trp Ala
          195   200   205

Ile Glu Arg Leu Leu Asn Lys Pro Thr Gly Ser Met Ser Gly Thr Ala
210   215   220

Phe Ile Ala Cys Gly Ser Leu Pro Ala Phe Thr Arg Ser Asn Val Ile
225   230   235   240

Val Ile Asp Glu Ala Gly Leu Leu Gly Arg His Ile Leu Thr Ala Val
          245   250   255

Val Tyr Cys Trp Trp Leu Leu Asn Ala Ile Tyr Gln Ser Pro Gln Tyr
          260   265   270

Ile Asn Gly Arg Lys Pro Val Ile Val Cys Val Gly Ser Pro Thr Gln
          275   280   285

Thr Asp Ser Leu Glu Ser His Phe Gln His Asp Met Gln Arg Ser His
          290   295   300

Val Thr Pro Ser Glu Asn Ile Leu Thr Tyr Ile Ile Cys Asn Gln Thr
305   310   315   320

Leu Arg Gln Tyr Thr Asn Ile Ser His Asn Trp Ala Ile Phe Ile Asn
          325   330   335

Asn Lys Arg Cys Gln Glu Asp Asp Phe Gly Asn Leu Leu Lys Thr Leu
          340   345   350

Glu Tyr Gly Leu Pro Ile Thr Glu Ala His Ala Arg Leu Val Asp Thr
          355   360   365

Phe Val Val Pro Ala Ser Tyr Ile Asn Asn Pro Ala Asn Leu Pro Gly
          370   375   380

Trp Thr Arg Leu Tyr Ser Ser His Lys Glu Val Ser Ala Tyr Met Ser
385   390   395   400

Lys Leu His Ala His Leu Lys Leu Ser Lys Asn Asp His Phe Ser Val
          405   410   415

Phe Ala Leu Pro Thr Tyr Thr Phe Ile Arg Leu Thr Ala Phe Asp Glu
            420   425   430

Tyr Arg Lys Leu Thr Gly Gln Pro Gly Leu Ser Val Glu His Trp Ile
        435   440   445

Arg Ala Asn Ser Gly Arg Leu His Asn Tyr Ser Gln Ser Arg Asp His
    450   455   460

Asp Met Gly Thr Val Lys Tyr Glu Thr His Ser Asn Arg Asp Leu Ile
465   470   475   480

Val Ala Arg Thr Asp Ile Thr Tyr Val Leu Asn Ser Leu Val Val Val
            485   490   495

Thr Thr Arg Leu Arg Lys Leu Val Ile Gly Phe Ser Gly Thr Phe Gln
        500   505   510

Ser Phe Ala Lys Val Leu Arg Asp Asp Ser Phe Val Lys Ala Arg Gly
        515   520   525

Glu Thr Ser Ile Glu Tyr Ala Tyr Arg Phe Leu Ser Asn Leu Ile Phe
    530   535   540

Gly Gly Leu Ile Asn Phe Tyr Asn Phe Leu Leu Asn Lys Asn Leu His
545   550   555   560

Pro Asp Lys Val Ser Leu Ala Tyr Lys Arg Leu Ala Ala Leu Thr Leu
            565   570   575

Glu Leu Leu Ser Gly Thr Asn Lys Ala Pro Leu His Glu Ala Ala Val
            580   585   590

Asn Gly Ala Gly Ala Gly Ile Asp Cys Asp Gly Ala Ala Thr Ser Ala
        595   600   605

Asp Lys Ala Phe Cys Phe Thr Lys Ala Pro Glu Ser Lys Val Thr Ala
        610   615   620

Ser Ile Pro Glu Asp Pro Asp Asp Val Ile Phe Thr Ala Leu Asn Asp
625   630   635   640

Glu Val Ile Asp Leu Val Tyr Cys Gln Tyr Glu Phe Ser Tyr Pro Lys
            645   650   655

Ser Ser Asn Glu Val His Ala Gln Phe Leu Leu Met Lys Ala Ile Tyr
            660   665   670

Asp Gly Arg Tyr Ala Ile Leu Ala Glu Leu Phe Glu Ser Ser Phe Thr
        675   680   685

Thr Ala Pro Phe Ser Ala Tyr Val Asp Asn Val Asn Phe Asn Gly Ser
    690   695   700

Glu Leu Leu Ile Gly Asn Val Arg Gly Gly Leu Leu Ser Leu Ala Leu
705   710   715   720

Gln Thr Asp Thr Tyr Thr Leu Leu Gly Tyr Thr Phe Ala Pro Val Pro
            725   730   735

Val Phe Val Glu Glu Leu Thr Arg Lys Lys Leu Tyr Arg Glu Thr Thr
            740   745   750

Glu Met Leu Tyr Ala Leu His Val Pro Leu Met Val Leu Gln Asp Gln
        755   760   765

His Gly Phe Val Ser Ile Val Asn Ala Asn Val Cys Glu Phe Thr Glu
    770   775   780

Ser Ile Glu Asp Ala Glu Leu Ala Met Ala Thr Thr Val Asp Tyr Gly
785   790   795   800

Leu Ser Ser Lys Leu Ala Met Thr Ile Ala Arg Ser Gln Gly Leu Ser
            805   810   815

Leu Glu Lys Val Ala Ile Cys Phe Thr Ala Asp Lys Leu Arg Leu Asn
            820   825   830

Ser Val Tyr Val Ala Met Ser Arg Thr Val Ser Ser Arg Phe Leu Lys
        835   840   845

Met Asn Leu Asn Pro Leu Arg Glu Arg Tyr Glu Lys Ser Ala Glu Ile
    850   855   860

Ser Asp His Ile Leu Ala Ala Leu Arg Asp Pro Asn Val His Val Val
865   870   875   880

Tyr

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Met Phe Cys Thr Ser Pro Ala Thr Arg Gly Asp Ser Ser Glu Ser Lys
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Pro Gly Ala Ser Val Asp Val Asn Gly Lys Met Glu Tyr Gly Ser Ala
            20                  25                  30

Pro Gly Pro Leu Asn Gly Arg Asp Thr Ser Arg Gly Pro Gly Ala Phe
            35                  40                  45

Cys Thr Pro Gly Trp Glu Ile His Pro Ala Arg Leu Val Glu Asp Ile
        50                  55                  60

Asn Arg Val Phe Leu Cys Ile Ala Gln Ser Ser Gly Arg Val Thr Arg
65                  70                  75                  80

Asp Ser Arg Arg Leu Arg Arg Ile Cys Leu Asp Phe Tyr Leu Met Gly
                85                  90                  95

Arg Thr Arg Gln Arg Pro Thr Leu Ala Cys Trp Glu Glu Leu Leu Gln
            100                 105                 110

Leu Gln Pro Thr Gln Thr Gln Cys Leu Arg Ala Thr Leu Met Glu Val
            115                 120                 125

Ser His Arg Pro Pro Arg Gly Glu Asp Gly Phe Ile Glu Ala Pro Asn
        130                 135                 140

Val Pro Leu His Arg Ser Ala Leu Glu Cys Asp Val Ser Asp Asp Gly
145                 150                 155                 160

Gly Glu Asp Asp Ser Asp Asp Asp Gly Ser Thr Pro Ser Asp Val Ile
                165                 170                 175

Glu Phe Arg Asp Ser Asp Ala Glu Ser Ser Asp Gly Glu Asp Phe Ile
            180                 185                 190

Val Glu Glu Glu Ser Glu Glu Ser Thr Asp Ser Cys Glu Pro Asp Gly
            195                 200                 205

Val Pro Gly Asp Cys Tyr Arg Asp Gly Asp Gly Cys Asn Thr Pro Ser
        210                 215                 220

Pro Lys Arg Pro Gln Arg Ala Ile Glu Arg Tyr Ala Gly Ala Glu Thr
225                 230                 235                 240

Ala Glu Tyr Thr Ala Ala Lys Ala Leu Thr Ala Leu Gly Glu Gly Gly
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                            245   250   255

Val Asp Trp Lys Arg Arg Arg His Glu Ala Pro Arg Arg His Asp Ile
            260   265   270

Pro Pro Pro His Gly Val
            275

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<213>   Varicella zoster

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Met Asn Leu Cys Gly Ser Arg Gly Glu His Pro Gly Gly Glu Tyr Ala
1   5   10   15

Gly Leu Tyr Cys Thr Arg His Asp Thr Pro Ala His Gln Ala Leu Met
                20   25   30

Asn Asp Ala Glu Arg Tyr Phe Ala Ala Ala Leu Cys Ala Ile Ser Thr
            35   40   45

Glu Ala Tyr Glu Ala Phe Ile His Ser Pro Ser Glu Arg Pro Cys Ala
        50   55   60

Ser Leu Trp Gly Arg Ala Lys Asp Ala Phe Gly Arg Met Cys Gly Glu
65   70   75   80

Leu Ala Ala Asp Arg Gln Arg Pro Pro Ser Val Pro Pro Ile Arg Arg
                85   90   95

Ala Val Leu Ser Leu Leu Arg Glu Gln Cys Met Pro Asp Pro Gln Ser
                100   105   110

His Leu Glu Leu Ser Glu Arg Leu Ile Leu Met Ala Tyr Trp Cys Cys
            115   120   125

Leu Gly His Ala Gly Leu Pro Thr Ile Gly Leu Ser Pro Asp Asn Lys
        130   135   140

Cys Ile Arg Ala Glu Leu Tyr Asp Arg Pro Gly Gly Ile Cys His Arg
145   150   155   160

Leu Phe Asp Ala Tyr Leu Gly Cys Gly Ser Leu Gly Val Pro Arg Thr
                165   170   175

Tyr Glu Arg Ser
                            Page 223

<210>   39
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<212>   PRT
<213>   Varicella zoster

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Met Asn Asp Val Asp Ala Thr Asp Thr Phe Val Gly Gln Gly Lys Phe
1   5   10   15

Arg Gly Ala Ile Ser Thr Ser Pro Ser His Ile Met Gln Thr Cys Gly
                20   25   30

Phe Ile Gln Gln Met Phe Pro Val Glu Met Ser Pro Gly Ile Glu Ser
            35   40   45

Glu Asp Asp Pro Asn Tyr Asp Val Asn Met Asp Ile Gln Ser Phe Asn
        50   55   60

Ile Phe Asp Gly Val His Glu Thr Glu Ala Glu Ala Ser Val Ala Leu
65   70   75   80

Cys Ala Glu Ala Arg Val Gly Ile Asn Lys Ala Gly Phe Val Ile Leu
                85   90   95

Lys Thr Phe Thr Pro Gly Ala Glu Gly Phe Ala Phe Ala Cys Met Asp
            100   105   110

Ser Lys Thr Cys Glu His Val Val Ile Lys Ala Gly Gln Arg Gln Gly
        115   120   125

Thr Ala Thr Glu Ala Thr Val Leu Arg Ala Leu Thr His Pro Ser Val
    130   135   140

Val Gln Leu Lys Gly Thr Phe Thr Tyr Asn Lys Met Thr Cys Leu Ile
145   150   155   160

Leu Pro Arg Tyr Arg Thr Asp Leu Tyr Cys Tyr Leu Ala Ala Lys Arg
                165   170   175

Asn Leu Pro Ile Cys Asp Ile Leu Ala Ile Gln Arg Ser Val Leu Arg
            180   185   190

Ala Leu Gln Tyr Leu His Asn Asn Ser Ile Ile His Arg Asp Ile Lys
        195   200   205

Ser Glu Asn Ile Phe Ile Asn His Pro Gly Asp Val Cys Val Gly Asp

210   215   220

Phe Gly Ala Ala Cys Phe Pro Val Asp Ile Asn Ala Asn Arg Tyr Tyr
225   230   235   240

Gly Trp Ala Gly Thr Ile Ala Thr Asn Ser Pro Glu Leu Leu Ala Arg
                245   250   255

Asp Pro Tyr Gly Pro Ala Val Asp Ile Trp Ser Ala Gly Ile Val Leu
                260   265   270

Phe Glu Met Ala Thr Gly Gln Asn Ser Leu Phe Glu Arg Asp Gly Leu
            275   280   285

Asp Gly Asn Cys Asp Ser Glu Arg Gln Ile Lys Leu Ile Ile Arg Arg
        290   295   300

Ser Gly Thr His Pro Asn Glu Phe Pro Ile Asn Pro Thr Ser Asn Leu
305   310   315   320

Arg Arg Gln Tyr Ile Gly Leu Ala Lys Arg Ser Ser Arg Lys Pro Gly
                325   330   335

Ser Arg Pro Leu Trp Thr Asn Leu Tyr Glu Leu Pro Ile Asp Leu Glu
                340   345   350

Tyr Leu Ile Cys Lys Met Leu Ser Phe Asp Ala Arg His Arg Pro Ser
                355   360   365

Ala Glu Val Leu Leu Asn His Ser Val Phe Gln Thr Leu Pro Asp Pro
        370   375   380

Tyr Pro Asn Pro Met Glu Val Gly Asp
385   390

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<213>   Varicella zoster

<400>   40

Met Phe Leu Ile Gln Cys Leu Ile Ser Ala Val Ile Phe Tyr Ile Gln
1   5   10   15

Val Thr Asn Ala Leu Ile Phe Lys Gly Asp His Val Ser Leu Gln Val
                20   25   30

Asn Ser Ser Leu Thr Ser Ile Leu Ile Pro Met Gln Asn Asp Asn Tyr
                            Page 225

Thr Glu Ile Lys Gly Gln Leu Val Phe Ile Gly Glu Gln Leu Pro Thr
    50   55   60

Gly Thr Asn Tyr Ser Gly Thr Leu Glu Leu Leu Tyr Ala Asp Thr Val
65   70   75   80

Ala Phe Cys Phe Arg Ser Val Gln Val Ile Arg Tyr Asp Gly Cys Pro
                85   90   95

Arg Ile Arg Thr Ser Ala Phe Ile Ser Cys Arg Tyr Lys His Ser Trp
            100   105   110

His Tyr Gly Asn Ser Thr Asp Arg Ile Ser Thr Glu Pro Asp Ala Gly
        115   120   125

Val Met Leu Lys Ile Thr Lys Pro Gly Ile Asn Asp Ala Gly Val Tyr
    130   135   140

Val Leu Leu Val Arg Leu Asp His Ser Arg Ser Thr Asp Gly Phe Ile
145   150   155   160

Leu Gly Val Asn Val Tyr Thr Ala Gly Ser His His Asn Ile His Gly
            165   170   175

Val Ile Tyr Thr Ser Pro Ser Leu Gln Asn Gly Tyr Ser Thr Arg Ala
            180   185   190

Leu Phe Gln Gln Ala Arg Leu Cys Asp Leu Pro Ala Thr Pro Lys Gly
        195   200   205

Ser Gly Thr Ser Leu Phe Gln His Met Leu Asp Leu Arg Ala Gly Lys
    210   215   220

Ser Leu Glu Asp Asn Pro Trp Leu His Glu Asp Val Val Thr Thr Glu
225   230   235   240

Thr Lys Ser Val Val Lys Glu Gly Ile Glu Asn His Val Tyr Pro Thr
            245   250   255

Asp Met Ser Thr Leu Pro Glu Lys Ser Leu Asn Asp Pro Pro Glu Asn
            260   265   270

Leu Leu Ile Ile Ile Pro Ile Val Ala Ser Val Met Ile Leu Thr Ala
        275   280   285

```
Met Val Ile Val Ile Val Ile Ser Val Lys Arg Arg Arg Ile Lys Lys
    290             295             300

His Pro Ile Tyr Arg Pro Asn Thr Lys Thr Arg Arg Gly Ile Gln Asn
305             310             315             320

Ala Thr Pro Glu Ser Asp Val Met Leu Glu Ala Ala Ile Ala Gln Leu
                325             330             335

Ala Thr Ile Arg Glu Glu Ser Pro Pro His Ser Val Val Asn Pro Phe
            340             345             350

Val Lys
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<210> 41
<211> 623
<212> PRT
<213> Varicella zoster

<400> 41

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Met Gly Thr Val Asn Lys Pro Val Val Gly Val Leu Met Gly Phe Gly
1               5               10              15

Ile Ile Thr Gly Thr Leu Arg Ile Thr Asn Pro Val Arg Ala Ser Val
            20              25              30

Leu Arg Tyr Asp Asp Phe His Thr Asp Glu Asp Lys Leu Asp Thr Asn
        35              40              45

Ser Val Tyr Glu Pro Tyr Tyr His Ser Asp His Ala Glu Ser Ser Trp
    50              55              60

Val Asn Arg Gly Glu Ser Ser Arg Lys Ala Tyr Asp His Asn Ser Pro
65              70              75              80

Tyr Ile Trp Pro Arg Asn Asp Tyr Asp Gly Phe Leu Glu Asn Ala His
                85              90              95

Glu His His Gly Val Tyr Asn Gln Gly Arg Gly Ile Asp Ser Gly Glu
            100             105             110

Arg Leu Met Gln Pro Thr Gln Met Ser Ala Gln Glu Asp Leu Gly Asp
        115             120             125

Asp Thr Gly Ile His Val Ile Pro Thr Leu Asn Gly Asp Asp Arg His
    130             135             140
```

Lys Ile Val Asn Val Asp Gln Arg Gln Tyr Gly Asp Val Phe Lys Gly
145   150   155   160

Asp Leu Asn Pro Lys Pro Gln Gly Gln Arg Leu Ile Glu Val Ser Val
                165   170   175

Glu Glu Asn His Pro Phe Thr Leu Arg Ala Pro Ile Gln Arg Ile Tyr
                180   185   190

Gly Val Arg Tyr Thr Glu Thr Trp Ser Phe Leu Pro Ser Leu Thr Cys
                195   200   205

Thr Gly Asp Ala Ala Pro Ala Ile Gln His Ile Cys Leu Lys His Thr
                210   215   220

Thr Cys Phe Gln Asp Val Val Val Asp Val Asp Cys Ala Glu Asn Thr
225   230   235   240

Lys Glu Asp Gln Leu Ala Glu Ile Ser Tyr Arg Phe Gln Gly Lys Lys
                245   250   255

Glu Ala Asp Gln Pro Trp Ile Val Val Asn Thr Ser Thr Leu Phe Asp
                260   265   270

Glu Leu Glu Leu Asp Pro Pro Glu Ile Glu Pro Gly Val Leu Lys Val
                275   280   285

Leu Arg Thr Glu Lys Gln Tyr Leu Gly Val Tyr Ile Trp Asn Met Arg
                290   295   300

Gly Ser Asp Gly Thr Ser Thr Tyr Ala Thr Phe Leu Val Thr Trp Lys
305   310   315   320

Gly Asp Glu Lys Thr Arg Asn Pro Thr Pro Ala Val Thr Pro Gln Pro
                325   330   335

Arg Gly Ala Glu Phe His Met Trp Asn Tyr His Ser His Val Phe Ser
                340   345   350

Val Gly Asp Thr Phe Ser Leu Ala Met His Leu Gln Tyr Lys Ile His
                355   360   365

Glu Ala Pro Phe Asp Leu Leu Leu Glu Trp Leu Tyr Val Pro Ile Asp
                370   375   380

Pro Thr Cys Gln Pro Met Arg Leu Tyr Ser Thr Cys Leu Tyr His Pro
385   390   395   400

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```
Asn Ala Pro Gln Cys Leu Ser His Met Asn Ser Gly Cys Thr Phe Thr
            405             410                 415

Ser Pro His Leu Ala Gln Arg Val Ala Ser Thr Val Tyr Gln Asn Cys
            420             425                 430

Glu His Ala Asp Asn Tyr Thr Ala Tyr Cys Leu Gly Ile Ser His Met
            435             440                 445

Glu Pro Ser Phe Gly Leu Ile Leu His Asp Gly Gly Thr Thr Leu Lys
        450             455             460

Phe Val Asp Thr Pro Glu Ser Leu Ser Gly Leu Tyr Val Phe Val Val
465             470             475             480

Tyr Phe Asn Gly His Val Glu Ala Val Ala Tyr Thr Val Val Ser Thr
            485             490                 495

Val Asp His Phe Val Asn Ala Ile Glu Glu Arg Gly Phe Pro Pro Thr
            500             505                 510

Ala Gly Gln Pro Pro Ala Thr Thr Lys Pro Lys Glu Ile Thr Pro Val
            515             520                 525

Asn Pro Gly Thr Ser Pro Leu Leu Arg Tyr Ala Ala Trp Thr Gly Gly
        530             535             540

Leu Ala Ala Val Val Leu Leu Cys Leu Val Ile Phe Leu Ile Cys Thr
545             550             555             560

Ala Lys Arg Met Arg Val Lys Ala Tyr Arg Val Asp Lys Ser Pro Tyr
            565             570                 575

Asn Gln Ser Met Tyr Tyr Ala Gly Leu Pro Val Asp Asp Phe Glu Asp
            580             585                 590

Ser Glu Ser Thr Asp Thr Glu Glu Phe Gly Asn Ala Ile Gly Gly
            595             600                 605

Ser His Gly Gly Ser Ser Tyr Thr Val Tyr Ile Asp Lys Thr Arg
        610             615             620
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<210>  42
<211>  1310
<212>  PRT
<213>  Varicella zoster

<400>  42
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Met Asp Thr Pro Pro Met Gln Arg Ser Thr Pro Gln Arg Ala Gly Ser
1   5   10   15

Pro Asp Thr Leu Glu Leu Met Asp Leu Leu Asp Ala Ala Ala Ala Ala
                20   25   30

Ala Glu His Arg Ala Arg Val Val Thr Ser Ser Gln Pro Asp Asp Leu
            35   40   45

Leu Phe Gly Glu Asn Gly Val Met Val Gly Arg Glu His Glu Ile Val
        50   55   60

Ser Ile Pro Ser Val Ser Gly Leu Gln Pro Glu Pro Arg Thr Glu Asp
65   70   75   80

Val Gly Glu Glu Leu Thr Gln Asp Asp Tyr Val Cys Glu Asp Gly Gln
                85   90   95

Asp Leu Met Gly Ser Pro Val Ile Pro Leu Ala Glu Val Phe His Thr
                100   105   110

Arg Phe Ser Glu Ala Gly Ala Arg Glu Pro Thr Gly Ala Asp Arg Ser
            115   120   125

Leu Glu Thr Val Ser Leu Gly Thr Lys Leu Ala Arg Ser Pro Lys Pro
        130   135   140

Pro Met Asn Asp Gly Glu Thr Gly Arg Gly Thr Thr Pro Pro Phe Pro
145   150   155   160

Gln Ala Phe Ser Pro Val Ser Pro Ala Ser Pro Val Gly Asp Ala Ala
                165   170   175

Gly Asn Asp Gln Arg Glu Asp Gln Arg Ser Ile Pro Arg Gln Thr Thr
                180   185   190

Arg Gly Asn Ser Pro Gly Leu Pro Ser Val Val His Arg Asp Arg Gln
            195   200   205

Thr Gln Ser Ile Ser Gly Lys Lys Pro Gly Asp Glu Gln Ala Gly His
        210   215   220

Ala His Ala Ser Gly Asp Gly Val Val Leu Gln Lys Thr Gln Arg Pro
225   230   235   240

Ala Gln Gly Lys Ser Pro Lys Lys Lys Thr Leu Lys Val Lys Val Pro
                245   250   255

Leu Pro Ala Arg Lys Pro Gly Gly Pro Val Pro Gly Pro Val Glu Gln
            260   265   270

Leu Tyr His Val Leu Ser Asp Ser Val Pro Ala Lys Gly Ala Lys Ala
        275   280   285

Asp Leu Pro Phe Glu Thr Asp Asp Thr Arg Pro Arg Lys His Asp Ala
    290   295   300

Arg Gly Ile Thr Pro Arg Val Pro Gly Arg Ser Ser Gly Gly Lys Pro
305   310   315   320

Arg Ala Phe Leu Ala Leu Pro Gly Arg Ser His Ala Pro Asp Pro Ile
            325   330   335

Glu Asp Asp Ser Pro Val Glu Lys Lys Pro Lys Ser Arg Glu Phe Val
            340   345   350

Ser Ser Ser Ser Ser Ser Ser Ser Trp Gly Ser Ser Ser Glu Asp Glu
        355   360   365

Asp Asp Glu Pro Arg Arg Val Ser Val Gly Ser Glu Thr Thr Gly Ser
    370   375   380

Arg Ser Gly Arg Glu His Ala Pro Ser Pro Ser Asn Ser Asp Asp Ser
385   390   395   400

Asp Ser Asn Asp Gly Gly Ser Thr Lys Gln Asn Ile Gln Pro Gly Tyr
            405   410   415

Arg Ser Ile Ser Gly Pro Asp Pro Arg Ile Arg Lys Thr Lys Arg Leu
            420   425   430

Ala Gly Glu Pro Gly Arg Gln Arg Gln Lys Ser Phe Ser Leu Pro Arg
            435   440   445

Ser Arg Thr Pro Ile Ile Pro Pro Val Ser Gly Pro Leu Met Met Pro
    450   455   460

Asp Gly Ser Pro Trp Pro Gly Ser Ala Pro Leu Pro Ser Asn Arg Val
465   470   475   480

Arg Phe Gly Pro Ser Gly Glu Thr Arg Glu Gly His Trp Glu Asp Glu
            485   490   495

Ala Val Arg Ala Ala Arg Ala Arg Tyr Glu Ala Ser Thr Glu Pro Val

Page 231

Pro Leu Tyr Val Pro Glu Leu Gly Asp Pro Ala Arg Gln Tyr Arg Ala
        515   520   525

Leu Ile Asn Leu Ile Tyr Cys Pro Asp Arg Asp Pro Ile Ala Trp Leu
    530   535   540

Gln Asn Pro Lys Leu Thr Gly Val Asn Ser Ala Leu Asn Gln Phe Tyr
545   550   555   560

Gln Lys Leu Leu Pro Pro Gly Arg Ala Gly Thr Ala Val Thr Gly Ser
            565   570   575

Val Ala Ser Pro Val Pro His Val Gly Glu Ala Met Ala Thr Gly Glu
            580   585   590

Ala Leu Trp Ala Leu Pro His Ala Ala Ala Ala Val Ala Met Ser Arg
        595   600   605

Arg Tyr Asp Arg Ala Gln Lys His Phe Ile Leu Gln Ser Leu Arg Arg
    610   615   620

Ala Phe Ala Ser Met Ala Tyr Pro Glu Ala Thr Gly Ser Ser Pro Ala
625   630   635   640

Ala Arg Ile Ser Arg Gly His Pro Ser Pro Thr Thr Pro Ala Thr Gln
            645   650   655

Ala Pro Asp Pro Gln Pro Ser Ala Ala Ala Arg Ser Leu Ser Val Cys
            660   665   670

Pro Pro Asp Asp Arg Leu Arg Thr Pro Arg Lys Arg Lys Ser Gln Pro
        675   680   685

Val Glu Ser Arg Ser Leu Leu Asp Lys Ile Arg Glu Thr Pro Val Ala
    690   695   700

Asp Ala Arg Val Ala Asp Asp His Val Val Ser Lys Ala Lys Arg Arg
705   710   715   720

Val Ser Glu Pro Val Thr Ile Thr Ser Gly Pro Val Val Asp Pro Pro
            725   730   735

Ala Val Ile Thr Met Pro Leu Asp Gly Pro Ala Pro Asn Gly Gly Phe
        740   745   750

Arg Arg Ile Pro Arg Gly Ala Leu His Thr Pro Val Pro Ser Asp Gln
      755   760   765

Ala Arg Lys Ala Tyr Cys Thr Pro Glu Thr Ile Ala Arg Leu Val Asp
      770   775   780

Asp Pro Leu Phe Pro Thr Ala Trp Arg Pro Ala Leu Ser Phe Asp Pro
785   790   795   800

Gly Ala Leu Ala Glu Ile Ala Ala Arg Arg Pro Gly Gly Gly Asp Arg
            805   810   815

Arg Phe Gly Pro Pro Ser Gly Val Glu Ala Leu Arg Arg Arg Cys Ala
            820   825   830

Trp Met Arg Gln Ile Pro Asp Pro Glu Asp Val Arg Leu Leu Ile Ile
        835   840   845

Tyr Asp Pro Leu Pro Gly Glu Asp Ile Asn Gly Pro Leu Glu Ser Thr
      850   855   860

Leu Ala Thr Asp Pro Gly Pro Ser Trp Ser Pro Ser Arg Gly Gly Leu
865   870   875   880

Ser Val Val Leu Ala Ala Leu Ser Asn Arg Leu Cys Leu Pro Ser Thr
            885   890   895

His Ala Trp Ala Gly Asn Trp Thr Gly Pro Pro Asp Val Ser Ala Leu
        900   905   910

Asn Ala Arg Gly Val Leu Leu Ser Thr Arg Asp Leu Ala Phe Ala
        915   920   925

Gly Ala Val Glu Tyr Leu Gly Ser Arg Leu Ala Ser Ala Arg Arg Arg
      930   935   940

Leu Leu Val Leu Asp Ala Val Ala Leu Glu Arg Trp Pro Arg Asp Gly
945   950   955   960

Pro Ala Leu Ser Gln Tyr His Val Tyr Val Arg Ala Pro Ala Arg Pro
            965   970   975

Asp Ala Gln Ala Val Val Arg Trp Pro Asp Ser Ala Val Thr Glu Gly
        980   985   990

Leu Ala Arg Ala Val Phe Ala Ser Ser Arg Thr Phe Gly Pro Ala Ser
      995   1000   1005

Phe Ala Arg Ile Glu Thr Ala Phe Ala Asn Leu Tyr Pro Gly Glu
    1010   1015   1020

Gln Pro Leu Cys Leu Cys Arg Gly Gly Asn Val Ala Tyr Thr Val
    1025   1030   1035

Cys Thr Arg Ala Gly Pro Lys Thr Arg Val Pro Leu Ser Pro Arg
    1040   1045   1050

Glu Tyr Arg Gln Tyr Val Leu Pro Gly Phe Asp Gly Cys Lys Asp
    1055   1060   1065

Leu Ala Arg Gln Ser Arg Gly Leu Gly Leu Gly Ala Ala Asp Phe
    1070   1075   1080

Val Asp Glu Ala Ala His Ser His Arg Ala Ala Asn Arg Trp Gly
    1085   1090   1095

Leu Gly Ala Ala Leu Arg Pro Val Phe Leu Pro Glu Gly Arg Arg
    1100   1105   1110

Pro Gly Ala Ala Gly Pro Glu Ala Gly Asp Val Pro Thr Trp Ala
    1115   1120   1125

Arg Val Phe Cys Arg His Ala Leu Leu Glu Pro Asp Pro Ala Ala
    1130   1135   1140

Glu Pro Leu Val Leu Pro Pro Val Ala Gly Arg Ser Val Ala Leu
    1145   1150   1155

Tyr Ala Ser Ala Asp Glu Ala Arg Asn Ala Leu Pro Pro Ile Pro
    1160   1165   1170

Arg Val Met Trp Pro Pro Gly Phe Gly Ala Ala Glu Thr Val Leu
    1175   1180   1185

Glu Gly Ser Asp Gly Thr Arg Phe Val Phe Gly His His Gly Gly
    1190   1195   1200

Ser Glu Arg Pro Ser Glu Thr Gln Ala Gly Arg Gln Arg Arg Thr
    1205   1210   1215

Ala Asp Asp Arg Glu His Ala Leu Glu Leu Asp Asp Trp Glu Val
    1220   1225   1230

Gly Cys Glu Asp Ala Trp Asp Ser Glu Glu Gly Gly Gly Asp Asp
    1235   1240   1245

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Gly Asp  Ala Pro Gly Ser Ser  Phe Gly Val Ser Ile  Val Ser Val
    1250             1255             1260


Ala Pro  Gly Val Leu Arg Asp  Arg Arg Val Gly Leu  Arg Pro Ala
    1265             1270             1275


Val Lys  Val Glu Leu Leu Ser  Ser Ser Ser Ser Ser  Glu Asp Glu
    1280             1285             1290


Asp Asp  Val Trp Gly Gly Arg  Gly Gly Arg Ser Pro  Pro Gln Ser
    1295             1300             1305


Arg Gly
    1310
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<210>   43
<211>   1002
<212>   DNA
<213>   Varicella zoster


<220>
<221>   CDS
<222>   (1)..(1002)

<400>   43
atg cat tta aag cct acc aga ttt ttc cac gca aac caa ccg cca atg      48
Met His Leu Lys Pro Thr Arg Phe Phe His Ala Asn Gln Pro Pro Met
1               5               10              15

ccg cat tca tac gag atg gag gac tta tgc ttc gac gac atg caa tat      96
Pro His Ser Tyr Glu Met Glu Asp Leu Cys Phe Asp Asp Met Gln Tyr
            20              25              30

cgc tgg tct ccc tcg aac aca ccc tat cga agt atg tct agg cga tat     144
Arg Trp Ser Pro Ser Asn Thr Pro Tyr Arg Ser Met Ser Arg Arg Tyr
        35              40              45

aaa tcc gta tct cgg agc ggg cct tcg atg cgt gta cgc tcc aga acg     192
Lys Ser Val Ser Arg Ser Gly Pro Ser Met Arg Val Arg Ser Arg Thr
    50              55              60

cca tgc cgc cgt caa acc att cga gga aaa ctt atg tca aag gag cgg     240
Pro Cys Arg Arg Gln Thr Ile Arg Gly Lys Leu Met Ser Lys Glu Arg
65              70              75              80

tct gtg tac cgc cat tat ttt aat tac atc gca agg tcc ccc cca gaa     288
Ser Val Tyr Arg His Tyr Phe Asn Tyr Ile Ala Arg Ser Pro Pro Glu
                85              90              95

gaa cta gct acc gtt aga ggc tta atc gtg cca att att aag acg acc     336
Glu Leu Ala Thr Val Arg Gly Leu Ile Val Pro Ile Ile Lys Thr Thr
            100             105             110

cct gtc acc ctt ccg ttt aac ttg ggt cag aca gtg gcg gat aac tgc     384
Pro Val Thr Leu Pro Phe Asn Leu Gly Gln Thr Val Ala Asp Asn Cys
```

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ctg tcg tta tcc gga atg ggt tat cat tta ggt ctc gga ggt tat tgt          432
Leu Ser Leu Ser Gly Met Gly Tyr His Leu Gly Leu Gly Gly Tyr Cys
130                 135                     140

ccg aca tgc act gca tct gga gaa ccg cgt cta tgt cga acc gat cgg          480
Pro Thr Cys Thr Ala Ser Gly Glu Pro Arg Leu Cys Arg Thr Asp Arg
145                 150                 155                     160

gcg gct ctg ata cta gca tat gtt cag cag ctt aac aac ata tac gaa          528
Ala Ala Leu Ile Leu Ala Tyr Val Gln Gln Leu Asn Asn Ile Tyr Glu
                    165                 170                 175

tat cgt gtg ttt ctt gca tcc att ttg gcg cta tca gac cga gcc aac          576
Tyr Arg Val Phe Leu Ala Ser Ile Leu Ala Leu Ser Asp Arg Ala Asn
                180                 185                 190

atg caa gca gcg tcc gct gaa ccc cta ttg tcg agc gta ttg gca caa          624
Met Gln Ala Ala Ser Ala Glu Pro Leu Leu Ser Ser Val Leu Ala Gln
            195                 200                 205

ccg gaa tta ttt ttt atg tat cat att atg agg gag ggg ggc atg cga          672
Pro Glu Leu Phe Phe Met Tyr His Ile Met Arg Glu Gly Gly Met Arg
210                 215                 220

gat ata cgc gta ctt ttt tat cgt gat gga gat gcc gga ggg ttt atg          720
Asp Ile Arg Val Leu Phe Tyr Arg Asp Gly Asp Ala Gly Gly Phe Met
225                 230                 235                     240

atg tat gtt ata ttt ccg ggg aaa tct gtt cac ctc cat tac aga cta          768
Met Tyr Val Ile Phe Pro Gly Lys Ser Val His Leu His Tyr Arg Leu
                    245                 250                 255

atc gat cat ata cag gcc gcg tgt cgg ggg tat aaa ata gtc gca cac          816
Ile Asp His Ile Gln Ala Ala Cys Arg Gly Tyr Lys Ile Val Ala His
                260                 265                 270

gtt tgg cag aca aca ttt tta ctg tcg gta tgt cgc aac cca gaa caa          864
Val Trp Gln Thr Thr Phe Leu Leu Ser Val Cys Arg Asn Pro Glu Gln
            275                 280                 285

caa aca gag act gtg gtg cca tcc att gga aca tcg gac gtt tac tgt          912
Gln Thr Glu Thr Val Val Pro Ser Ile Gly Thr Ser Asp Val Tyr Cys
290                 295                 300

aaa atg tgt gac ctt aac ttt gat gga gaa ttg ctt ttg gaa tac aaa          960
Lys Met Cys Asp Leu Asn Phe Asp Gly Glu Leu Leu Leu Glu Tyr Lys
305                 310                 315                 320

aga ctc tac gca tta ttt gat gac ttt gtt cct cct cgg tga               1002
Arg Leu Tyr Ala Leu Phe Asp Asp Phe Val Pro Pro Arg
                325                 330
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<210>   44
<211>   333
<212>   PRT
<213>   Varicella zoster

<400>   44

Met His Leu Lys Pro Thr Arg Phe Phe His Ala Asn Gln Pro Pro Met

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1                    5                   10                           15

Pro His Ser Tyr Glu Met Glu Asp Leu Cys Phe Asp Asp Met Gln Tyr
             20              25              30

Arg Trp Ser Pro Ser Asn Thr Pro Tyr Arg Ser Met Ser Arg Arg Tyr
         35              40              45

Lys Ser Val Ser Arg Ser Gly Pro Ser Met Arg Val Arg Ser Arg Thr
     50              55              60

Pro Cys Arg Arg Gln Thr Ile Arg Gly Lys Leu Met Ser Lys Glu Arg
65              70              75              80

Ser Val Tyr Arg His Tyr Phe Asn Tyr Ile Ala Arg Ser Pro Pro Glu
             85              90              95

Glu Leu Ala Thr Val Arg Gly Leu Ile Val Pro Ile Ile Lys Thr Thr
             100             105             110

Pro Val Thr Leu Pro Phe Asn Leu Gly Gln Thr Val Ala Asp Asn Cys
         115             120             125

Leu Ser Leu Ser Gly Met Gly Tyr His Leu Gly Leu Gly Gly Tyr Cys
     130             135             140

Pro Thr Cys Thr Ala Ser Gly Glu Pro Arg Leu Cys Arg Thr Asp Arg
145             150             155             160

Ala Ala Leu Ile Leu Ala Tyr Val Gln Gln Leu Asn Asn Ile Tyr Glu
             165             170             175

Tyr Arg Val Phe Leu Ala Ser Ile Leu Ala Leu Ser Asp Arg Ala Asn
             180             185             190

Met Gln Ala Ala Ser Ala Glu Pro Leu Leu Ser Ser Val Leu Ala Gln
         195             200             205

Pro Glu Leu Phe Phe Met Tyr His Ile Met Arg Glu Gly Gly Met Arg
     210             215             220

Asp Ile Arg Val Leu Phe Tyr Arg Asp Gly Asp Ala Gly Gly Phe Met
225             230             235             240

Met Tyr Val Ile Phe Pro Gly Lys Ser Val His Leu His Tyr Arg Leu
             245             250             255
```

Ile Asp His Ile Gln Ala Ala Cys Arg Gly Tyr Lys Ile Val Ala His
              260   265   270

Val Trp Gln Thr Thr Phe Leu Leu Ser Val Cys Arg Asn Pro Glu Gln
              275   280   285

Gln Thr Glu Thr Val Val Pro Ser Ile Gly Thr Ser Asp Val Tyr Cys
          290   295   300

Lys Met Cys Asp Leu Asn Phe Asp Gly Glu Leu Leu Leu Glu Tyr Lys
305   310   315   320

Arg Leu Tyr Ala Leu Phe Asp Asp Phe Val Pro Pro Arg
                  325   330

<210> 45
<211> 1533
<212> DNA
<213> Varicella zoster

<220>
<221> CDS
<222> (1)..(1533)

<400> 45
atg gat gct gac gac aca ccc ccc aac ctc caa ata tct cca act gca   48
Met Asp Ala Asp Asp Thr Pro Pro Asn Leu Gln Ile Ser Pro Thr Ala
1   5   10   15

gga cct ttg cgt tcc cac cac aat acc gac gga cat gaa cca aat gca   96
Gly Pro Leu Arg Ser His His Asn Thr Asp Gly His Glu Pro Asn Ala
              20   25   30

acc gca gcc gat cag caa gaa cga gaa tcc acc aac ccc aca cac gga   144
Thr Ala Ala Asp Gln Gln Glu Arg Glu Ser Thr Asn Pro Thr His Gly
          35   40   45

tgt gta aat cat cca tgg gcc aat ccg tca act gca aca tgc atg gaa   192
Cys Val Asn His Pro Trp Ala Asn Pro Ser Thr Ala Thr Cys Met Glu
      50   55   60

tca cca gaa cga tca caa cag aca agc tta ttt tta tta aag cac ggc   240
Ser Pro Glu Arg Ser Gln Gln Thr Ser Leu Phe Leu Leu Lys His Gly
65   70   75   80

tta acg aga gat cca ata cat caa cgc gaa agg gtg gac gtt ttt cca   288
Leu Thr Arg Asp Pro Ile His Gln Arg Glu Arg Val Asp Val Phe Pro
                  85   90   95

caa ttt aac aaa ccc cca tgg gtt ttt aga att tcc aaa tta tcc cgt   336
Gln Phe Asn Lys Pro Pro Trp Val Phe Arg Ile Ser Lys Leu Ser Arg
              100   105   110

tta att gta ccc atc ttc acg ctc aat gaa cag tta tgt ttt tct aaa   384
Leu Ile Val Pro Ile Phe Thr Leu Asn Glu Gln Leu Cys Phe Ser Lys
          115   120   125

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```
tta cag att cga gat aga ccc agg ttt gcg gga cgg gga acg tat ggg    432
Leu Gln Ile Arg Asp Arg Pro Arg Phe Ala Gly Arg Gly Thr Tyr Gly
    130             135                 140

cgt gtt cat ata tac cca tcg tca aaa ata gct gta aaa acc atg gac    480
Arg Val His Ile Tyr Pro Ser Ser Lys Ile Ala Val Lys Thr Met Asp
145             150                 155                 160

agt cgt gtt ttt aat aga gag tta att aac gcg att tta gcg agt gag    528
Ser Arg Val Phe Asn Arg Glu Leu Ile Asn Ala Ile Leu Ala Ser Glu
                165                 170                 175

ggt tct ata cga gca ggg gaa agg cta ggt att tct agc ata gtt tgc    576
Gly Ser Ile Arg Ala Gly Glu Arg Leu Gly Ile Ser Ser Ile Val Cys
            180                 185                 190

ctt tta ggt ttt tcg tta caa acc aaa cag cta ctg ttt ccg gca tac    624
Leu Leu Gly Phe Ser Leu Gln Thr Lys Gln Leu Leu Phe Pro Ala Tyr
        195                 200                 205

gac atg gat atg gat gaa tac att gtt cgc ctg tcc aga cgg ttg aca    672
Asp Met Asp Met Asp Glu Tyr Ile Val Arg Leu Ser Arg Arg Leu Thr
    210                 215                 220

ata cct gat cac ata gac aga aaa att gcc cat gta ttt tta gat ttg    720
Ile Pro Asp His Ile Asp Arg Lys Ile Ala His Val Phe Leu Asp Leu
225                 230                 235                 240

gct caa gcg ttg acg ttt tta aat cga acg tgc ggc ctg acc cac cta    768
Ala Gln Ala Leu Thr Phe Leu Asn Arg Thr Cys Gly Leu Thr His Leu
                245                 250                 255

gat gtg aaa tgt ggc aat att ttt ctt aac gtc gac aac ttt gcc tcg    816
Asp Val Lys Cys Gly Asn Ile Phe Leu Asn Val Asp Asn Phe Ala Ser
            260                 265                 270

ttg gaa ata acc aca gca gta atc gga gac tat agc cta gta aca tta    864
Leu Glu Ile Thr Thr Ala Val Ile Gly Asp Tyr Ser Leu Val Thr Leu
        275                 280                 285

aat acg tat tcc ctt tgt act cga gcg ata ttt gaa gtt gga aat cca    912
Asn Thr Tyr Ser Leu Cys Thr Arg Ala Ile Phe Glu Val Gly Asn Pro
    290                 295                 300

tcc cac ccg gag cac gta cta cgc gta ccc cgg gat gca tcg cag atg    960
Ser His Pro Glu His Val Leu Arg Val Pro Arg Asp Ala Ser Gln Met
305                 310                 315                 320

tca ttt cgt ttg gtg ttg agt cat gga aca aac caa ccc cct gaa atc   1008
Ser Phe Arg Leu Val Leu Ser His Gly Thr Asn Gln Pro Pro Glu Ile
            325                 330                 335

ttg ctt gat tat att aat gga acg ggc ctt act aaa tat act gga acc   1056
Leu Leu Asp Tyr Ile Asn Gly Thr Gly Leu Thr Lys Tyr Thr Gly Thr
        340                 345                 350

ttg ccc caa aga gtt gga ctt gcg att gat ctt tat gca ttg ggc caa   1104
Leu Pro Gln Arg Val Gly Leu Ala Ile Asp Leu Tyr Ala Leu Gly Gln
        355                 360                 365

gca ctc tta gaa gtt atc ctg cta gga cgt ctt ccc gga caa ctg ccc   1152
Ala Leu Leu Glu Val Ile Leu Leu Gly Arg Leu Pro Gly Gln Leu Pro
    370                 375                 380
```

```
att tca gta cat cgg acc ccg cat tat cac tac tac ggt cat aag tta      1200
Ile Ser Val His Arg Thr Pro His Tyr His Tyr Tyr Gly His Lys Leu
385             390             395             400

tca cca gat ttg gcg ctt gat acg ctg gca tat cga tgt gtc ctg gcg      1248
Ser Pro Asp Leu Ala Leu Asp Thr Leu Ala Tyr Arg Cys Val Leu Ala
                405             410             415

cca tat ata ctc cca tct gac atc ccc ggg gac tta aat tat aat ccc      1296
Pro Tyr Ile Leu Pro Ser Asp Ile Pro Gly Asp Leu Asn Tyr Asn Pro
                420             425             430

ttt ata cac gcc gga gag ctg aac acc cgt att tcc cgg aat tct tta      1344
Phe Ile His Ala Gly Glu Leu Asn Thr Arg Ile Ser Arg Asn Ser Leu
            435             440             445

cgc cgg ata ttc cag tgt cac gca gtg cgt tac ggc gta acg cac tca      1392
Arg Arg Ile Phe Gln Cys His Ala Val Arg Tyr Gly Val Thr His Ser
        450             455             460

aag ctt ttc gaa ggc ata cgc att ccg gcc tca tta tac cca gcc act      1440
Lys Leu Phe Glu Gly Ile Arg Ile Pro Ala Ser Leu Tyr Pro Ala Thr
465             470             475             480

gtt gtt aca tcg ttg ttg tgt cac gat aat tca gaa ata cgc tcg gat      1488
Val Val Thr Ser Leu Leu Cys His Asp Asn Ser Glu Ile Arg Ser Asp
                485             490             495

cac cct tta tta tgg cac gat cgg gat tgg ata gga tcg aca taa         1533
His Pro Leu Leu Trp His Asp Arg Asp Trp Ile Gly Ser Thr
                500             505             510


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<212>   PRT
<213>   Varicella zoster

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Met Asp Ala Asp Asp Thr Pro Pro Asn Leu Gln Ile Ser Pro Thr Ala
1               5               10              15


Gly Pro Leu Arg Ser His His Asn Thr Asp Gly His Glu Pro Asn Ala
                20              25              30


Thr Ala Ala Asp Gln Gln Glu Arg Glu Ser Thr Asn Pro Thr His Gly
            35              40              45


Cys Val Asn His Pro Trp Ala Asn Pro Ser Thr Ala Thr Cys Met Glu
        50              55              60


Ser Pro Glu Arg Ser Gln Gln Thr Ser Leu Phe Leu Leu Lys His Gly
65              70              75              80


Leu Thr Arg Asp Pro Ile His Gln Arg Glu Arg Val Asp Val Phe Pro
                85              90              95
```

Gln Phe Asn Lys Pro Pro Trp Val Phe Arg Ile Ser Lys Leu Ser Arg
            100   105   110

Leu Ile Val Pro Ile Phe Thr Leu Asn Glu Gln Leu Cys Phe Ser Lys
            115   120   125

Leu Gln Ile Arg Asp Arg Pro Arg Phe Ala Gly Arg Gly Thr Tyr Gly
    130   135   140

Arg Val His Ile Tyr Pro Ser Ser Lys Ile Ala Val Lys Thr Met Asp
145   150   155   160

Ser Arg Val Phe Asn Arg Glu Leu Ile Asn Ala Ile Leu Ala Ser Glu
            165   170   175

Gly Ser Ile Arg Ala Gly Glu Arg Leu Gly Ile Ser Ser Ile Val Cys
            180   185   190

Leu Leu Gly Phe Ser Leu Gln Thr Lys Gln Leu Leu Phe Pro Ala Tyr
            195   200   205

Asp Met Asp Met Asp Glu Tyr Ile Val Arg Leu Ser Arg Arg Leu Thr
    210   215   220

Ile Pro Asp His Ile Asp Arg Lys Ile Ala His Val Phe Leu Asp Leu
225   230   235   240

Ala Gln Ala Leu Thr Phe Leu Asn Arg Thr Cys Gly Leu Thr His Leu
            245   250   255

Asp Val Lys Cys Gly Asn Ile Phe Leu Asn Val Asp Asn Phe Ala Ser
            260   265   270

Leu Glu Ile Thr Thr Ala Val Ile Gly Asp Tyr Ser Leu Val Thr Leu
            275   280   285

Asn Thr Tyr Ser Leu Cys Thr Arg Ala Ile Phe Glu Val Gly Asn Pro
    290   295   300

Ser His Pro Glu His Val Leu Arg Val Pro Arg Asp Ala Ser Gln Met
305   310   315   320

Ser Phe Arg Leu Val Leu Ser His Gly Thr Asn Gln Pro Pro Glu Ile
            325   330   335

Leu Leu Asp Tyr Ile Asn Gly Thr Gly Leu Thr Lys Tyr Thr Gly Thr

<pre>
                340   345   350
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```
Leu Pro Gln Arg Val Gly Leu Ala Ile Asp Leu Tyr Ala Leu Gly Gln
        355                 360                 365

Ala Leu Leu Glu Val Ile Leu Leu Gly Arg Leu Pro Gly Gln Leu Pro
        370                 375                 380

Ile Ser Val His Arg Thr Pro His Tyr His Tyr Tyr Gly His Lys Leu
385                 390                 395                 400

Ser Pro Asp Leu Ala Leu Asp Thr Leu Ala Tyr Arg Cys Val Leu Ala
        405                 410                 415

Pro Tyr Ile Leu Pro Ser Asp Ile Pro Gly Asp Leu Asn Tyr Asn Pro
        420                 425                 430

Phe Ile His Ala Gly Glu Leu Asn Thr Arg Ile Ser Arg Asn Ser Leu
        435                 440                 445

Arg Arg Ile Phe Gln Cys His Ala Val Arg Tyr Gly Val Thr His Ser
        450                 455                 460

Lys Leu Phe Glu Gly Ile Arg Ile Pro Ala Ser Leu Tyr Pro Ala Thr
465                 470                 475                 480

Val Val Thr Ser Leu Leu Cys His Asp Asn Ser Glu Ile Arg Ser Asp
        485                 490                 495

His Pro Leu Leu Trp His Asp Arg Asp Trp Ile Gly Ser Thr
        500                 505                 510
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<213> Varicella zoster

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Met Gly Gln Ser Ser Ser Ser Gly Arg Gly Gly Ile Cys Gly Leu Cys
1               5                   10                  15

aaa cgg tac aac gag ctt gtt acg tgc aac gga gaa acc gtt gct ttg      96
Lys Arg Tyr Asn Glu Leu Val Thr Cys Asn Gly Glu Thr Val Ala Leu
            20                  25                  30

aac tca gag ttc ttt gaa gac ttt gac ttt gat gag aat gta aca gag     144
```

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```
                    Asn Ser Glu Phe Phe Glu Asp Phe Asp Phe Asp Glu Asn Val Thr Glu
                        35              40              45
```

```
gac gcc gat aaa tcc aca caa cgc cgc cca cga gtg atc gat gta aca              192
Asp Ala Asp Lys Ser Thr Gln Arg Arg Pro Arg Val Ile Asp Val Thr
    50              55              60
```

```
cca aaa cga aaa cct tcg gga aag agc tcc cat tcc aaa tgc gca aaa              240
Pro Lys Arg Lys Pro Ser Gly Lys Ser Ser His Ser Lys Cys Ala Lys
65              70              75              80
```

```
tgt taa                                                                      246
Cys
```

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Met Gly Gln Ser Ser Ser Ser Gly Arg Gly Gly Ile Cys Gly Leu Cys
1               5               10              15
```

```
Lys Arg Tyr Asn Glu Leu Val Thr Cys Asn Gly Glu Thr Val Ala Leu
            20              25              30
```

```
Asn Ser Glu Phe Phe Glu Asp Phe Asp Phe Asp Glu Asn Val Thr Glu
        35              40              45
```

```
Asp Ala Asp Lys Ser Thr Gln Arg Arg Pro Arg Val Ile Asp Val Thr
    50              55              60
```

```
Pro Lys Arg Lys Pro Ser Gly Lys Ser Ser His Ser Lys Cys Ala Lys
65              70              75              80
```

```
Cys
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Met Lys Asn Pro Gln Lys Leu Ala Ile Thr Phe Leu Pro Leu Tyr Val
1               5               10              15
```

```
atc cca acg tac acg ttg tgt att aaa gca ttg tat aaa aac acg cat              96
```

```
Ile Pro Thr Tyr Thr Leu Cys Ile Lys Ala Leu Tyr Lys Asn Thr His
            20              25              30
```

```
gcg ggc ttg ctg ttc tca ttt cta ggt ttt gtc tta aat aca ccc gcc    144
Ala Gly Leu Leu Phe Ser Phe Leu Gly Phe Val Leu Asn Thr Pro Ala
        35              40              45
```

```
atg agc atc tct gga ccc cca acg acg ttt att tta tat agg tta cat    192
Met Ser Ile Ser Gly Pro Pro Thr Thr Phe Ile Leu Tyr Arg Leu His
        50              55              60
```

```
ggg gtt agg cgg gtt ctt cac tgg act tta ccg gat cat gaa caa aca    240
Gly Val Arg Arg Val Leu His Trp Thr Leu Pro Asp His Glu Gln Thr
65              70              75              80
```

```
ctc tac gca ttt acg ggt ggg tca aga tca atg gcg gtg aag acg gac    288
Leu Tyr Ala Phe Thr Gly Gly Ser Arg Ser Met Ala Val Lys Thr Asp
                85              90              95
```

```
gct cga tgt gat aca atg agc ggt ggt atg atc gtc ctt caa cac acc    336
Ala Arg Cys Asp Thr Met Ser Gly Gly Met Ile Val Leu Gln His Thr
                100             105             110
```

```
cat aca gtg acc ctg cta acc ata gac tgt tct act gac ttt tca tca    384
His Thr Val Thr Leu Leu Thr Ile Asp Cys Ser Thr Asp Phe Ser Ser
                115             120             125
```

```
tac gca ttt acg cac cgg gat ttc cac tta cag gac aaa ccc cac gca    432
Tyr Ala Phe Thr His Arg Asp Phe His Leu Gln Asp Lys Pro His Ala
        130             135             140
```

```
aca ttt gcg atg ccg ttt atg tcc tgg gtc ggt tct gac cca aca tct    480
Thr Phe Ala Met Pro Phe Met Ser Trp Val Gly Ser Asp Pro Thr Ser
145             150             155             160
```

```
cag ctg tac agt aat gtg ggg ggg gta cta tcc gta ata acg gaa gat    528
Gln Leu Tyr Ser Asn Val Gly Gly Val Leu Ser Val Ile Thr Glu Asp
                165             170             175
```

```
gac cta tcc atg tgt atc tca att gtt ata tac ggt tta cgg gta aac    576
Asp Leu Ser Met Cys Ile Ser Ile Val Ile Tyr Gly Leu Arg Val Asn
                180             185             190
```

```
aga cct gac gat cag acc aca cca aca cca acc ccg cac cag tat aca    624
Arg Pro Asp Asp Gln Thr Thr Pro Thr Pro Thr Pro His Gln Tyr Thr
                195             200             205
```

```
tcg caa agg cgg cag cct gaa acc aac tgt cct tct tca cca caa ccg    672
Ser Gln Arg Arg Gln Pro Glu Thr Asn Cys Pro Ser Ser Pro Gln Pro
        210             215             220
```

```
gcc ttt ttc aca tca gac gac gac gtt ctt tcg tta ata tta cgg gac    720
Ala Phe Phe Thr Ser Asp Asp Asp Val Leu Ser Leu Ile Leu Arg Asp
225             230             235             240
```

```
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Ala Ala Asn Ala
```

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<212>   PRT
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<213> Varicella zoster

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Ile Pro Thr Tyr Thr Leu Cys Ile Lys Ala Leu Tyr Lys Asn Thr His
                20                  25                  30

Ala Gly Leu Leu Phe Ser Phe Leu Gly Phe Val Leu Asn Thr Pro Ala
            35                  40                  45

Met Ser Ile Ser Gly Pro Pro Thr Thr Phe Ile Leu Tyr Arg Leu His
        50                  55                  60

Gly Val Arg Arg Val Leu His Trp Thr Leu Pro Asp His Glu Gln Thr
65                  70                  75                  80

Leu Tyr Ala Phe Thr Gly Gly Ser Arg Ser Met Ala Val Lys Thr Asp
                85                  90                  95

Ala Arg Cys Asp Thr Met Ser Gly Gly Met Ile Val Leu Gln His Thr
                100                 105                 110

His Thr Val Thr Leu Leu Thr Ile Asp Cys Ser Thr Asp Phe Ser Ser
            115                 120                 125

Tyr Ala Phe Thr His Arg Asp Phe His Leu Gln Asp Lys Pro His Ala
    130                 135                 140

Thr Phe Ala Met Pro Phe Met Ser Trp Val Gly Ser Asp Pro Thr Ser
145                 150                 155                 160

Gln Leu Tyr Ser Asn Val Gly Gly Val Leu Ser Val Ile Thr Glu Asp
                165                 170                 175

Asp Leu Ser Met Cys Ile Ser Ile Val Ile Tyr Gly Leu Arg Val Asn
                180                 185                 190

Arg Pro Asp Asp Gln Thr Thr Pro Thr Pro Thr Pro His Gln Tyr Thr
            195                 200                 205

Ser Gln Arg Arg Gln Pro Glu Thr Asn Cys Pro Ser Ser Pro Gln Pro
    210                 215                 220

Ala Phe Phe Thr Ser Asp Asp Val Leu Ser Leu Ile Leu Arg Asp
225                 230                 235                 240
```

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Ala Ala Asn Ala

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ggactccgtc accccgact ctgcggggg ctcctcccc cgcgccctcc ccacacatcg      240

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daccccggtg cgtccccgtc gtccccgccc ccctcctcgc tgtcccacgc gtcttcacac      420

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gacgtgataa aaaaaaacac acggggcccc cccctttttt tggtgttata aaggcaaccc    5400

aatcgaaggt ctcccgcccc ggaatccccc attgccattt tacccaagta gccttattca    5460

tagatgtaaa cgtttgggtg tgtgttttgt tgtgcagggt tcgtccgatt cataacgcga    5520

cagcgtcgag tcggttttaa gggaaaaggt tactacggcc ccaaggac atg ttt tgc    5577
                                                        Met Phe Cys
                                                         1

acc tca ccg gct acg cgg ggc gac tcg tcc gag tca aaa ccc ggg gca    5625
Thr Ser Pro Ala Thr Arg Gly Asp Ser Ser Glu Ser Lys Pro Gly Ala
 5               10                  15
```

```
tcg gtt gat gtt aac gga aag atg gaa tat gga tct gca cca gga ccc    5673
Ser Val Asp Val Asn Gly Lys Met Glu Tyr Gly Ser Ala Pro Gly Pro
20              25                  30                      35

ctg aac ggc cgg gat acg tcg cgg ggc ccc ggc gcg ttt tgt act ccg    5721
Leu Asn Gly Arg Asp Thr Ser Arg Gly Pro Gly Ala Phe Cys Thr Pro
            40                  45                  50

ggt tgg gag atc cac ccg gcc agg ctc gtt gag gac atc aac cgt gtt    5769
Gly Trp Glu Ile His Pro Ala Arg Leu Val Glu Asp Ile Asn Arg Val
            55                  60                  65

ttt tta tgt att gca cag tcg tcg gga cgc gtc acg cga gat tca cga    5817
Phe Leu Cys Ile Ala Gln Ser Ser Gly Arg Val Thr Arg Asp Ser Arg
        70                  75                  80

aga ttg cgg cgc ata tgc ctc gac ttt tat cta atg ggt cgc acc aga    5865
Arg Leu Arg Arg Ile Cys Leu Asp Phe Tyr Leu Met Gly Arg Thr Arg
    85                  90                  95

cag cgt ccc acg tta gcg tgc tgg gag gaa ttg tta cag ctt caa ccc    5913
Gln Arg Pro Thr Leu Ala Cys Trp Glu Glu Leu Leu Gln Leu Gln Pro
100                 105                 110                 115

acc cag acg cag tgc tta cgc gct act tta atg gaa gtg tcc cat cga    5961
Thr Gln Thr Gln Cys Leu Arg Ala Thr Leu Met Glu Val Ser His Arg
                120                 125                 130

ccc cct cgg ggg gaa gac ggg ttc att gag gcg ccg aat gtt cct ttg    6009
Pro Pro Arg Gly Glu Asp Gly Phe Ile Glu Ala Pro Asn Val Pro Leu
            135                 140                 145

cat agg agc gca ctg gaa tgt gac gta tct gat gat ggt ggt gaa gac    6057
His Arg Ser Ala Leu Glu Cys Asp Val Ser Asp Asp Gly Gly Glu Asp
        150                 155                 160

gat agc gac gat gat ggg tct acg cca tcg gat gta att gaa ttt cgg    6105
Asp Ser Asp Asp Asp Gly Ser Thr Pro Ser Asp Val Ile Glu Phe Arg
    165                 170                 175

gat tcc gac gcg gaa tca tcg gac ggg gaa gac ttt ata gtg gaa gaa    6153
Asp Ser Asp Ala Glu Ser Ser Asp Gly Glu Asp Phe Ile Val Glu Glu
180                 185                 190                 195

gaa tca gag gag agc acc gat tct tgt gaa cca gac ggg gta ccc ggc    6201
Glu Ser Glu Glu Ser Thr Asp Ser Cys Glu Pro Asp Gly Val Pro Gly
                200                 205                 210

gat tgt tat cga gac ggg gat ggg tgc aac acc ccg tcc cca aag aga    6249
Asp Cys Tyr Arg Asp Gly Asp Gly Cys Asn Thr Pro Ser Pro Lys Arg
            215                 220                 225

ccc cag cgt gcc atc gag cga tac gcg ggt gca gaa acc gcg gaa tat    6297
Pro Gln Arg Ala Ile Glu Arg Tyr Ala Gly Ala Glu Thr Ala Glu Tyr
        230                 235                 240

aca gcc gcg aaa gcg ctc acc gcg ttg ggc gag ggg ggt gta gat tgg    6345
Thr Ala Ala Lys Ala Leu Thr Ala Leu Gly Glu Gly Gly Val Asp Trp
    245                 250                 255

aag cga cgt cga cac gaa gcc ccg cgc cgg cat gat ata ccg ccc ccc    6393
Lys Arg Arg Arg His Glu Ala Pro Arg Arg His Asp Ile Pro Pro Pro
```

```
cat ggc gtg tag tctttataaa taaatacaat ggtttggctc gtgtctttt         6445
His Gly Val
```

```
ttgatgtctg tctgtggggg agtggggtgt tgtggatatt agagggtaga gggtgctggt   6505
```

```
ttgaacgtct ccattaaccc acggggtccc cacacgggcc gtgtggt atg aat ctc     6561
                                                    Met Asn Leu
                                                            280
```

```
tgc gga tcc cgc ggt gag cac ccg ggc ggt gaa tat gcc gga ctt tac     6609
Cys Gly Ser Arg Gly Glu His Pro Gly Gly Glu Tyr Ala Gly Leu Tyr
            285                  290                  295
```

```
tgc aca cga cac gat acc ccc gcg cac cag gct ctc atg aac gac gcc     6657
Cys Thr Arg His Asp Thr Pro Ala His Gln Ala Leu Met Asn Asp Ala
        300                  305                  310
```

```
gaa cgg tac ttc gcc gcc gcg cta tgc gcc ata tct acc gag gcc tac     6705
Glu Arg Tyr Phe Ala Ala Ala Leu Cys Ala Ile Ser Thr Glu Ala Tyr
        315                  320                  325
```

```
gag gct ttt ata cac agc ccc tcc gag aga ccg tgc gcg agt ttg tgg     6753
Glu Ala Phe Ile His Ser Pro Ser Glu Arg Pro Cys Ala Ser Leu Trp
330                  335                  340                  345
```

```
ggg agg gca aag gac gcc ttc gga cgg atg tgc ggg gag ctc gca gcg     6801
Gly Arg Ala Lys Asp Ala Phe Gly Arg Met Cys Gly Glu Leu Ala Ala
                350                  355                  360
```

```
gat aga caa cgt cca ccc tcg gtt ccg ccg atc cgc aga gcg gtg tta     6849
Asp Arg Gln Arg Pro Pro Ser Val Pro Pro Ile Arg Arg Ala Val Leu
                365                  370                  375
```

```
tcg tta tta cgc gag caa tgc atg ccg gat cca caa tcg cat ctg gag     6897
Ser Leu Leu Arg Glu Gln Cys Met Pro Asp Pro Gln Ser His Leu Glu
                380                  385                  390
```

```
ctc agc gag cgg ctg ata ttg atg gca tat tgg tgc tgt ttg gga cac     6945
Leu Ser Glu Arg Leu Ile Leu Met Ala Tyr Trp Cys Cys Leu Gly His
        395                  400                  405
```

```
gcc gga ctt ccg act att gga ttg tcg ccc gat aat aaa tgc atc cgc     6993
Ala Gly Leu Pro Thr Ile Gly Leu Ser Pro Asp Asn Lys Cys Ile Arg
410                  415                  420                  425
```

```
gcc gaa tta tat gac cgc ccc ggg gga att tgt cac agg ctt ttt gac     7041
Ala Glu Leu Tyr Asp Arg Pro Gly Gly Ile Cys His Arg Leu Phe Asp
                430                  435                  440
```

```
gcg tac ctg ggc tgc ggg tcc ctt gga gtc cca aga acc tac gag aga     7089
Ala Tyr Leu Gly Cys Gly Ser Leu Gly Val Pro Arg Thr Tyr Glu Arg
                445                  450                  455
```

```
tcc tga caccccatcc ctttatatag aaaaaaaaaa taaatttaaa acatacaccg     7145
Ser
```

```
gataaaagcg tactgtttt tatttaaatt tacacgctcg gcgttgcccc ggttcggtga    7205
```

```
tcaccgggtc ttatctatat acaccgtgta actcgaaccc ccgtgactcc ctccaatcgc   7265
```

```
gttaccaaac tcttcttccg tatccgtaga ttccgagtcc tcgaaatcgt ccactggaag      7325

gccagcgtaa tacatgcttt ggttatacgg ggacttgtct accctatagg ctttaaccct      7385

cattcgttta gccgtacaga ttaaaaatat tacgagacat aaaagtacta ctgctgcaag      7445

ccctccggtc catgcggcat atcgtagaag tggtgacgtt ccggggttta cgggggtaat      7505

ttccttgggt ttagtagtcg ccggtggctg accggccgtt ggcggaaatc cacgctcttc      7565

aattgcgttt acaaaatgat ctactgtgga tacaacagtg tatgctacgg cttcaacatg      7625

cccgttaaaa tacaccacaa aaacgtataa tcccgacaaa ctctcgggtg tatctacaaa      7685

ctttaacgtg gtgcccccgt cgtgtaagat tagaccaaag ctaggctcca tatgagatat      7745

tcccagacaa tatgcggtgt agttatctgc atgttcacaa ttttgataca ctgtgcttgc      7805

aacacgctgg gctaaatgtg gcgaggtaaa tgtacaaccg gaattcatat gagagaggca      7865

ttggggtgcg ttgggatgat acaaacacgt agaatataac cgcattggtt gacatgtagg      7925

atcgatgggg acatacaacc actctaacag caaatcaaat ggcgcttcat gtatcttata      7985

ctgaagatgc attgccaagc taaacgtatc accaactgaa aatacatgcg agtggtaatt      8045

ccacatatga aactcagccc ctcttggttg aggagttact gcgggcgtag ggtttcttgt      8105

tttttcatcc cctttccagg tgaccaaaaa cgtggcgtag gtagacgtac catcggagcc      8165

gcgcatgttc caaatgtaca cacccaagta ttgtttttct gtccgaagta ctttcaagac      8225

acccggttca atctcggggg ggtctaattc gagttcatca aacagtgtgc tcgtgtttac      8285

aacaatccac ggttggtccg cttccttctt accttgaaaa cggtaactga tttcggccaa      8345

ctgatcctct ttagtatttt ccgcgcaatc cacatccacc accacgtctt gaaagcatgt      8405

tgtatgtttt aaacatatat gctggatggc gggcgctgcg tctcccgtac aggttaatga      8465

cggcaaaaag ctccaagtct cggtgtaccg gactccataa atccgctgaa tcggtgcgcg      8525

taaagtaaac gggtgatttt cttccactga cacctcaatg agtctttggc cttggggttt      8585

tggattaaga tctcctttaa acacgtcacc gtattgacgt tggtccacat ttacaatttt      8645

atgtctgtca tcgccgttta acgtagggat aacgtggatg cccgtatcgt ccccaagatc      8705

ctcctgtgca gacatttgtg tgggttgcat taaccgttcc ccgctatcga taccacggcc      8765

ctgattatac accccatggt gttcgtgtgc gttctctaaa aatccatcat aatcattacg      8825

tggccatata taaggtgagt tatgatcgta cgcttttcgc gaagactctc cccgatttac      8885

ccatgaagac tccgcatgat ctgaatggta gtaaggctca tatacggagt ttgtatccag      8945

tttgtcttca tcggtgtgaa aatcatcgta tcgcaagacg gatgctctga ccggattcgt      9005

tatacgcaac gttcccgtga taattccgaa ccccatcaat accccacca caggtttatt       9065

aactgtcccc atattacagg cgaccctcgg aatatagtca cttaaaacca cgcaattcgc      9125
```

```
ccgaggtcta aaaccatgga ctgctctcgt gtataccagc tcggccttta aggcttcata    9185

aaacatcccc gcccaaatgt gggcgtgtta acttatagtt aggagattct taatccttcc    9245

cctcatatca caacgcgtaa tcaaaacgct aaataaaacg catatagttt atttaatata    9305

aaatccggga taattagttc tatttaacaa acgggtttac aacggaatgt gggggggatt    9365

cttcgcgaat cgttgctagt tgtgcaatgg cggcctccaa catcacatcg gattctggtg    9425

tcgcattttg tatgcccctt cttgtttttg tatttgggcg ataaattgga tgttttttaa    9485

ttctacgtcg cttaacgctt attacaataa caataaccat ggcggtgagg atcatgacag    9545

acgctactat aggaataatt ataagtagat tttctggagg atcattaagg gacttttcgg    9605

gtaacgtgga catatccgtt ggatatacgt gattttctat cccctcctta acaacggact    9665

tagtttctgt cgtaacaacg tcctcatgta accaagggtt atcctctaac gatttaccgg    9725

cacgaagatc aagcatatgt tgaaacaggg aggtaccgga ccctttgggt gtcgcgggta    9785

aatcacacaa acgagcttgt tgaaaaaggg ctcttgtaga atatccattc tgtagagacg    9845

gagaagtgta gataaccccg tgaatgttgt gatgcgagcc cgctgtatat acatttacac    9905

caagaatgaa accatcggtg gatctgctat ggtctaaccg aacaagaagt acatacacac    9965

cagcatcatt tattcccggt ttggtaattt tcaacattac accagcatcc ggctctgttg   10025

atatccgatc cgttgagtta ccataatgcc acgaatgttt gtacctacac gaaataaaag   10085

cgctcgttct aatccgggga catccgtcgt atcttattac ttgtactgac cggaaacaaa   10145

acgccaccgt atccgcgtat aacagttcca gtgttccgct atagtttgtc ccggtaggta   10205

gttgctctcc aataaagaca agctgtcctt ttatctctgt ataattatca ttttgcatgg   10265

gaataaggat agacgtgaga ctgctgttaa cttgcaagct cacgtggtcg cccttgaaga   10325

tcaaagcgtt ggtcacttgt atgtaaaata taacggccga tatcaaacat tggattaaaa   10385

acatcgcgat taaatgaggc gcaccagtat acccaactac accgaagagc agctctgtga   10445

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acacaattta tacaatattt tattaacagg cttaatgaat tttaatctcc aacttccatt   10685

ggatttggat atggatcggg aagagtttgg aaaacagagt ggttaagcaa cacctctgct   10745

gatggtcgat gacgtgcgtc aaacgataac atcttacata tcaaatactc caaatcaatt   10805

ggcaactcat atagatttgt ccacaatggc ctggatccgg gttttcgaga agaccgtttt   10865

gccaaaccaa tgtattgtcg acgaagattt gatgtagggt taatgggaaa ttcattggga   10925

tgagttccag atcgtcgtat aataagttta atttgacgct cactgtcaca attgccatct   10985

aaaccgtctc gttcaaataa cgagttctgt cctgtagcca tttcaaataa tacaatcccg   11045
```

```
gcactccata tgtccacggc aggtccatat ggatctctag ccaataactc aggagagttt   11105

gtggcgattg ttccagccca gccataatac ctgttggcat taatatccac ggggaaacac   11165

gctgctccaa agtctcccac acaaacatca cctgggtggt taataaatat attttcagat   11225

tttatatcac ggtgaataat actgttatta tgaagatact gtaacgcgcg taatacagat   11285

cgctgaattg ctaaaatgtc acatatgggg aggttgcgct ttgcagctag atagcagtat   11345

aaatctgttc ggtaacgtgg taatataaga catgtcattt tgttatacgt aaacgttcct   11405

ttaagctgta caacggatgg gtgggttaac gctcttaaca cggttgcctc ggtggccgtt   11465

ccttgacgtt gacccgcttt aatgaccaca tgttcacatg ttttactgtc catacacgca   11525

aacgcaaaac cttccgcccc tggtgtaaac gttttaata ttacaaatcc cgctttatta   11585

attccaacgc gtgcttctgc gcacaatgcc acagaggctt cggcttcagt ttcgtgtaca   11645

ccatcaaata tattaaaaga ctgtatatcc atgttaacgt cataattggg atcatcctca   11705

gattctatgc cgggcgacat ttcaactgga aacatctgtt gtataaaccc acatgtttgc   11765

ataatatgtg acggtgatgt tgagatggcg ccacggaact ttccttgtcc aacaaaggtg   11825

tctgttgcat caacgtcgtt cattatactt gtataccccg acttatgttg atagtgttaa   11885

tgaaccaaaa acctgttgtc caacaactgt acaaaatata ctcaccgaca cacttataaa   11945

gtgatccgat tataagaggg cggagataat gacaaaaagg ggagggggtta aacataactt   12005

acaaatatgg atttgattgt tcctaggatt attaataatg tctacatgtt ttatttaata   12065

ataacgtaag gtaactttac ctctttgtga gaatgtcggt atagctgaca acgtttatga   12125

aaacgcgctt taaacgacct attgatgaat aatctagaat cttgcatgta tataaatatc   12185

aaaaggtgtg gtattaaaca cttttaaact agcctgctgg ccttacaatc tggatttct    12244
```

```
atg gcc gga caa aac acc atg gag ggt gag gcc gtg gcc tta ctg atg     12292
Met Ala Gly Gln Asn Thr Met Glu Gly Glu Ala Val Ala Leu Leu Met
    460             465             470

gaa gcg gtg gta acc ccg cga gcg caa cca aat aat aca acg ata aca     12340
Glu Ala Val Val Thr Pro Arg Ala Gln Pro Asn Asn Thr Thr Ile Thr
475             480             485             490

gcc ata caa ccg agc cgt tcg gct gaa aag tgt tat tat agt gat agc     12388
Ala Ile Gln Pro Ser Arg Ser Ala Glu Lys Cys Tyr Tyr Ser Asp Ser
            495             500             505

gaa aat gaa acg gca gat gaa ttt ttg cgt cga att gga aaa tat caa     12436
Glu Asn Glu Thr Ala Asp Glu Phe Leu Arg Arg Ile Gly Lys Tyr Gln
        510             515             520

cat aaa ata tat cat cgt aaa aaa ttc tgt tat att acg cta ata att     12484
His Lys Ile Tyr His Arg Lys Lys Phe Cys Tyr Ile Thr Leu Ile Ile
    525             530             535

gtc ttt gta ttt gct atg acg gga gcg gcc ttt gcc ttg gga tat ata     12532
Val Phe Val Phe Ala Met Thr Gly Ala Ala Phe Ala Leu Gly Tyr Ile
```

```
           540                    545                    550
acg tca caa ttt gtt gga taa gtggacgatt tcgaggactc ggaatctacg      12583
Thr Ser Gln Phe Val Gly
555                    560

gatacggaag aagagtttgg taacgcgatt ggagggagtc acggggggttc gagttacacg   12643

gtgtatatag ataagacccg gtgatcaccg aaccggggca acgccgagcg tgtaaattta   12703

aataaaaaac agtacgcttt tatccggtgt atgttttaaa tttatttttt ttttctatat   12763

aaagggatgg ggtgtcagga tctctcgtag gttcttggga ctccaaggga cccgcagccc   12823

aggtacgcgt caaaaagcct gtgacaaatt cccccggggc ggtcatataa ttcggcgcgg   12883

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ggggtatcgt gtcgtgtgca gtaaagtccg gcatattcac cgcccgggtg ctcaccgcgg   13303

gatccgcaga gattcatacc acacggcccg tgtggggacc ccgtgggtta atggagacgt   13363

tcaaaccagc accctctacc ctctaatatc cacaacaccc cactcccca cagacagaca    13423

tcaaaaaaag acacgagcca aaccattgta tttatttata aagactacac gccatggggg   13483

ggcggtatat catgccggcg cggggcttcg tgtcgacgtc gcttccaatc tacacccccc   13543

tcgcccaacg cggtgagcgc tttcgcggct gtatattccg cggtttctgc acccgcgtat   13603

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taacaatcgc cgggtacccc gtctggttca caagaatcgg tgctctcctc tgattcttct   13723

tccactataa agtcttcccc gtccgatgat tccgcgtcgg aatcccgaaa ttcaattaca   13783

tccgatggcg tagacccatc atcgtcgcta tcgtcttcac caccatcatc agatacgtca   13843

cattccagtg cgctcctatg caaaggaaca ttcggcgcct caatgaaccc gtcttccccc   13903

cgaggggggtc gatgggacac ttccattaaa gtagcgcgta agcactgcgt ctgggtgggt   13963

tgaagctgta acaattcctc ccagcacgct aacgtgggac gctgtctggt gcgacccatt   14023

agataaaagt cgaggcatat gcgccgcaat cttcgtgaat ctcgcgtgac gcgtcccgac   14083

gactgtgcaa tacataaaaa aacacggttg atgtcctcaa cgagcctggc cgggtggatc   14143

tcccaacccg gagtacaaaa cgcgccgggg ccccgcgacg tatcccggcc gttcaggggt   14203

cctggtgcag atccatattc catctttccg ttaacatcaa ccgatgcccc gggttttgac   14263

tcggacgagt cgccccgcgt agccggtgag gtgcaaaaca tgtccttggg gccgtagtaa   14323
```

```
cctttttccct taaaaccgac tcgacgctgt cgcgttatga atcggacgaa ccctgcacaa   14383

caaaacacac acccaaacgt ttacatctat gaataaggct acttgggtaa aatggcaatg   14443

ggggattccg gggcgggaga ccttcgattg ggttgccttt ataacaccaa aaaaaggggg   14503

gggccccgtg tgtttttttt tatcacgtca aatcgatttt aaaaagcctg ccgctccatt   14563

tggaatatat atattctgtg aaaagcccgc ccacacccca taaaaccgcg acatcgcggg   14623

aacacgcgcg aacaagaaac tctctctctt tctctatata tatatatata tatatatata   14683

tatatagaaa gaaagtgcga acggtggttg dacacatgcc aaaacatgaa aacccataca   14743

gtgaaaaaac gggaagtgcg aatgcagatc aaaagagtgt atccgattgg cgtacaccac   14803

agacatgcgg acgcccaatt taaccccccc ccttttttcac cccccaccccc caccccattc   14863

cacccccagga agtgcgaacg ggtttacatg cctcagatat gaagttcttc gacttgtttt   14923

tgaataaatt tttttgtgat tttctacaac ggtttagaga attatggtta taaacatcgg   14983

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accgcgcccc ctccccatcg gcggggtacc gcgcccccctc cccatcggcg gggtaccgcg   15103

ccccctcccc atcggcgggg ggttacgtga acaccacaac cccgtgtgta ttttatgggt   15163

tatcgcgggc ttcgtgccgc ctgacataat cgttgggagg ggtggtggtg tatacgcttg   15223

ttgattgcgc gaacgtaatg acgacggaga gggacccaaa cacaccgtcg acgtgcattt   15283

gattaactag atgccggatg ggtggaaaca acccgtgtta tataagatgt tttgcatgtg   15343

agacaacccc aattgtgttt atgtatatta tatatcgtct gtagacacac gatgattggt   15403

tgttatttaa acatatgtaa atgaaattca catgtctggt atcccttgtt atgatgttgt   15463

aaggtatgcg gaaatagaca ccgggcgtac atcgccaacc agcggtctct ccttaaacgc   15523

atactatggt ccatgaactt cccgcctcga gtctcgtcca atcactacat cgtcttatca   15583

ttaagaatat ttacacggtg acgacacggg gaggaaatat gcggtcgagg gggggggcaca   15643

acacgtttta agtactgttg gaactccctc accaaccgca atcgcaatcc tttgaaggct   15703

gcgagagcgt ttggaaaact cgggtacgtc taaattcacc ccagtgcg atg gat acg   15760
                                                      Met Asp Thr
```

```
ccg ccg atg cag cgc tct aca ccc caa cgc gcg ggg tcg cct gat act   15808
Pro Pro Met Gln Arg Ser Thr Pro Gln Arg Ala Gly Ser Pro Asp Thr
   565              570                  575

ttg gag tta atg gac ctg ttg gac gcg gcc gcg gcg gcc gcc gaa cac   15856
Leu Glu Leu Met Asp Leu Leu Asp Ala Ala Ala Ala Ala Ala Glu His
580              585                  590                  595

agg gcc cgg gtg gtc acc tcg agt cag cct gac gat cta cta ttt gga   15904
Arg Ala Arg Val Val Thr Ser Ser Gln Pro Asp Asp Leu Leu Phe Gly
            600                  605                  610
```

```
gag aac ggg gtc atg gtg gga cgg gaa cac gag atc gtt tca att ccc    15952
Glu Asn Gly Val Met Val Gly Arg Glu His Glu Ile Val Ser Ile Pro
            615             620                 625

tcc gta tcg gga ctt caa cca gaa ccc aga acg gaa gat gtt ggc gaa    16000
Ser Val Ser Gly Leu Gln Pro Glu Pro Arg Thr Glu Asp Val Gly Glu
            630             635                 640

gag cta aca caa gac gac tac gta tgc gag gac ggt cag gat cta atg    16048
Glu Leu Thr Gln Asp Asp Tyr Val Cys Glu Asp Gly Gln Asp Leu Met
            645             650                 655

ggc tcg cct gta atc ccg ctg gcc gag gtc ttc cac acc cga ttc tcg    16096
Gly Ser Pro Val Ile Pro Leu Ala Glu Val Phe His Thr Arg Phe Ser
660             665             670                 675

gag gcc ggc gcg cga gaa cca aca gga gcc gat cgc tcc ctt gag aca    16144
Glu Ala Gly Ala Arg Glu Pro Thr Gly Ala Asp Arg Ser Leu Glu Thr
            680             685                 690

gtc tct ctc gga acg aag ctt gct agg tct cca aaa cca ccg atg aac    16192
Val Ser Leu Gly Thr Lys Leu Ala Arg Ser Pro Lys Pro Pro Met Asn
            695             700                 705

gat ggg gaa acg ggc aga ggt acg acc cct ccg ttc ccg cag gcc ttc    16240
Asp Gly Glu Thr Gly Arg Gly Thr Thr Pro Pro Phe Pro Gln Ala Phe
            710             715                 720

tcc cct gta tcc ccc gcg tct cct gtt gga gac gcc gcc ggg aac gat    16288
Ser Pro Val Ser Pro Ala Ser Pro Val Gly Asp Ala Ala Gly Asn Asp
            725             730                 735

caa cgg gaa gac cag cgg tct ata ccc cga caa acg acg aga gga aat    16336
Gln Arg Glu Asp Gln Arg Ser Ile Pro Arg Gln Thr Thr Arg Gly Asn
740             745             750                 755

tca cca ggt ttg ccg tcg gtg gtc cat cga gac aga caa act cag tcc    16384
Ser Pro Gly Leu Pro Ser Val Val His Arg Asp Arg Gln Thr Gln Ser
            760             765                 770

atc tcg ggt aaa aag ccg ggc gat gag caa gcg ggt cat gcg cat gca    16432
Ile Ser Gly Lys Lys Pro Gly Asp Glu Gln Ala Gly His Ala His Ala
            775             780                 785

tcg ggg gac gga gta gtt ctc cag aaa act caa cgg ccc gct cag gga    16480
Ser Gly Asp Gly Val Val Leu Gln Lys Thr Gln Arg Pro Ala Gln Gly
            790             795                 800

aag agc ccg aag aaa aag act ttg aag gtt aag gtc cca ctc ccg gcg    16528
Lys Ser Pro Lys Lys Lys Thr Leu Lys Val Lys Val Pro Leu Pro Ala
            805             810                 815

cgg aaa ccc ggt gga cct gta ccc ggc ccg gtt gag caa ttg tac cac    16576
Arg Lys Pro Gly Gly Pro Val Pro Gly Pro Val Glu Gln Leu Tyr His
820             825             830                 835

gtc ctt tcg gac agc gtt ccc gct aag ggg gca aag gcg gac ctg ccg    16624
Val Leu Ser Asp Ser Val Pro Ala Lys Gly Ala Lys Ala Asp Leu Pro
            840             845                 850

ttt gag acc gat gat acc cgc cca agg aaa cat gat gcc cgg ggt ata    16672
Phe Glu Thr Asp Asp Thr Arg Pro Arg Lys His Asp Ala Arg Gly Ile
            855             860                 865
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aca cct cgc gtc cct gga cgt tcg tcg ggg ggc aaa cct aga gcg ttt       16720
Thr Pro Arg Val Pro Gly Arg Ser Ser Gly Gly Lys Pro Arg Ala Phe
        870             875             880

ttg gcc ctg ccg gga aga tcc cac gca cca gac ccg att gag gat gac       16768
Leu Ala Leu Pro Gly Arg Ser His Ala Pro Asp Pro Ile Glu Asp Asp
        885             890             895

agc cca gtg gag aaa aag cca aag agt cgt gag ttt gtt tcg tct tca       16816
Ser Pro Val Glu Lys Lys Pro Lys Ser Arg Glu Phe Val Ser Ser Ser
900             905             910             915

tcc tct tcc tcg tcg tgg gga tcg tca tcg gag gat gaa gac gat gaa       16864
Ser Ser Ser Ser Ser Trp Gly Ser Ser Ser Glu Asp Glu Asp Asp Glu
            920             925             930

ccc cgg cgc gtt tcg gtg gga agt gaa act aca ggc agc agg tcc gga       16912
Pro Arg Arg Val Ser Val Gly Ser Glu Thr Thr Gly Ser Arg Ser Gly
            935             940             945

cgc gaa cac gcc cct tcc ccg tca aat tcg gat gat tcg gac tca aat       16960
Arg Glu His Ala Pro Ser Pro Ser Asn Ser Asp Asp Ser Asp Ser Asn
        950             955             960

gat ggt ggg tcg acg aaa caa aat atc caa ccg gga tat cga tcc atc       17008
Asp Gly Gly Ser Thr Lys Gln Asn Ile Gln Pro Gly Tyr Arg Ser Ile
        965             970             975

agc ggt ccc gat ccg agg att cgt aag acc aaa cgt ctt gcg ggg gaa       17056
Ser Gly Pro Asp Pro Arg Ile Arg Lys Thr Lys Arg Leu Ala Gly Glu
980             985             990             995

ccg ggg cgc cag aga  cag aaa tca ttt tcc  ctg ccg cga tcc aga         17101
Pro Gly Arg Gln Arg  Gln Lys Ser Phe Ser  Leu Pro Arg Ser Arg
            1000            1005            1010

acc ccg ata att ccc  ccg gtg tcg ggg ccg  ctc atg atg ccc gac         17146
Thr Pro Ile Ile Pro  Pro Val Ser Gly Pro  Leu Met Met Pro Asp
            1015            1020            1025

gga agc cct tgg ccc  gga tcg gca ccc ctc  cca tcc aac agg gtg         17191
Gly Ser Pro Trp Pro  Gly Ser Ala Pro Leu  Pro Ser Asn Arg Val
            1030            1035            1040

cgg ttt gga ccg tcc  ggg gag acc aga gag  ggt cac tgg gag gat         17236
Arg Phe Gly Pro Ser  Gly Glu Thr Arg Glu  Gly His Trp Glu Asp
            1045            1050            1055

gag gct gtg aga gcg  gcg cgg gct cgt tac  gag gcc tca acg gaa         17281
Glu Ala Val Arg Ala  Ala Arg Ala Arg Tyr  Glu Ala Ser Thr Glu
            1060            1065            1070

ccc gtg ccg ctt tac  gtg ccg gag ttg gga  gat ccg gct aga cag         17326
Pro Val Pro Leu Tyr  Val Pro Glu Leu Gly  Asp Pro Ala Arg Gln
            1075            1080            1085

tac cgc gcg ctg att  aac ctg atc tac tgt  cca gac aga gac cct         17371
Tyr Arg Ala Leu Ile  Asn Leu Ile Tyr Cys  Pro Asp Arg Asp Pro
            1090            1095            1100

ata gca tgg ctc cag  aac ccc aag ctg acc  ggt gtc aac tcg gcc         17416
Ile Ala Trp Leu Gln  Asn Pro Lys Leu Thr  Gly Val Asn Ser Ala
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                     1105                   1110                      1115

ctg aac cag ttc tac  caa aag ctg ttg cca  ccg gga cgg gcg ggt        17461
Leu Asn Gln Phe Tyr  Gln Lys Leu Leu Pro  Pro Gly Arg Ala Gly
                1120                   1125                   1130

acc gcc gtt acg ggg  agc gta gcg tct ccc  gtt ccg cat gta ggc        17506
Thr Ala Val Thr Gly  Ser Val Ala Ser Pro  Val Pro His Val Gly
                1135                   1140                   1145

gaa gcc atg gcc acg  ggg gag gcc ctc tgg  gct ctc ccc cac gcg        17551
Glu Ala Met Ala Thr  Gly Glu Ala Leu Trp  Ala Leu Pro His Ala
                1150                   1155                   1160

gcc gcg gcc gtg gct  atg agc cgt cga tac  gac cgg gcc caa aaa        17596
Ala Ala Ala Val Ala  Met Ser Arg Arg Tyr  Asp Arg Ala Gln Lys
                1165                   1170                   1175

cac ttt atc cta cag  agt ctc cgc aga gcc  ttt gcc agc atg gca        17641
His Phe Ile Leu Gln  Ser Leu Arg Arg Ala  Phe Ala Ser Met Ala
                1180                   1185                   1190

tac ccc gag gca acg  ggc tcc agt ccg gcg  gcg cgg atc tcc cgc        17686
Tyr Pro Glu Ala Thr  Gly Ser Ser Pro Ala  Ala Arg Ile Ser Arg
                1195                   1200                   1205

ggt cac cct tct cca  aca acc ccg gcc aca  cag gct ccc gac cct        17731
Gly His Pro Ser Pro  Thr Thr Pro Ala Thr  Gln Ala Pro Asp Pro
                1210                   1215                   1220

cag ccg tcg gcc gcc  gca cgc tct ctt tct  gtg tgt cca ccg gat        17776
Gln Pro Ser Ala Ala  Ala Arg Ser Leu Ser  Val Cys Pro Pro Asp
                1225                   1230                   1235

gat cgt tta cga act  ccg cgc aag cgc aag  tcc cag cca gtc gag        17821
Asp Arg Leu Arg Thr  Pro Arg Lys Arg Lys  Ser Gln Pro Val Glu
                1240                   1245                   1250

agc aga agc ctc ctc  gac aag att agg gag  aca ccc gtc gcg gac        17866
Ser Arg Ser Leu Leu  Asp Lys Ile Arg Glu  Thr Pro Val Ala Asp
                1255                   1260                   1265

gcc cgg gtt gca gac  gat cat gtg gtt tcc  aag gcc aag agg cgg        17911
Ala Arg Val Ala Asp  Asp His Val Val Ser  Lys Ala Lys Arg Arg
                1270                   1275                   1280

gta tcc gag ccc gtg  acc atc acc tcg ggc  cct gtg gtg gat ccc        17956
Val Ser Glu Pro Val  Thr Ile Thr Ser Gly  Pro Val Val Asp Pro
                1285                   1290                   1295

ccc gcc gta ata acg  atg cca ctt gac gga  ccg gcc cca aac ggg        18001
Pro Ala Val Ile Thr  Met Pro Leu Asp Gly  Pro Ala Pro Asn Gly
                1300                   1305                   1310

gga ttt cgg cgt att  ccc cgg ggg gcc ctg  cat acc ccg gtc ccg        18046
Gly Phe Arg Arg Ile  Pro Arg Gly Ala Leu  His Thr Pro Val Pro
                1315                   1320                   1325

tcg gac cag gct cgc  aag gcg tac tgt acc  ccc gaa acc atc gcc        18091
Ser Asp Gln Ala Arg  Lys Ala Tyr Cys Thr  Pro Glu Thr Ile Ala
                1330                   1335                   1340

cgt ctg gtc gac gac  cca ttg ttt ccc acg  gcc tgg cgc cct gcg        18136
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Arg Leu Val Asp Asp  Pro Leu Phe Pro Thr  Ala Trp Arg Pro Ala
              1345             1350             1355

cta agc ttt gat ccc  ggc gcc ttg gcg gaa  atc gcc gct cgg cgt         18181
Leu Ser Phe Asp Pro  Gly Ala Leu Ala Glu  Ile Ala Ala Arg Arg
              1360             1365             1370

ccg ggc gga gga gac  cga cgg ttt ggt cca  ccc agc gga gtg gag         18226
Pro Gly Gly Gly Asp  Arg Arg Phe Gly Pro  Pro Ser Gly Val Glu
              1375             1380             1385

gcg ctg cga cgg agg  tgc gcc tgg atg cgg  cag atc cca gac ccg         18271
Ala Leu Arg Arg Arg  Cys Ala Trp Met Arg  Gln Ile Pro Asp Pro
              1390             1395             1400

gag gat gtg agg ctt  ctg atc atc tac gat  ccg ttg ccc gga gag         18316
Glu Asp Val Arg Leu  Leu Ile Ile Tyr Asp  Pro Leu Pro Gly Glu
              1405             1410             1415

gac atc aac ggc ccc  ctc gag agc acc ctc  gcg aca gat ccg gga         18361
Asp Ile Asn Gly Pro  Leu Glu Ser Thr Leu  Ala Thr Asp Pro Gly
              1420             1425             1430

ccg tca tgg agt cca  tcc cga ggg gga ctg  tct gtg gtc ctg gca         18406
Pro Ser Trp Ser Pro  Ser Arg Gly Gly Leu  Ser Val Val Leu Ala
              1435             1440             1445

gcc ctg agt aac cgg  ttg tgc ctg ccg agc  act cat gcc tgg gcc         18451
Ala Leu Ser Asn Arg  Leu Cys Leu Pro Ser  Thr His Ala Trp Ala
              1450             1455             1460

ggg aac tgg acc ggc  ccg ccg gac gtg tcc  gct ttg aac gcc cgg         18496
Gly Asn Trp Thr Gly  Pro Pro Asp Val Ser  Ala Leu Asn Ala Arg
              1465             1470             1475

ggc gtt tta tta ctg  tcg acc cga gac ctg  gcc ttt gcc ggg gcc         18541
Gly Val Leu Leu Leu  Ser Thr Arg Asp Leu  Ala Phe Ala Gly Ala
              1480             1485             1490

gtc gag tat cta ggc  tcg cgg ttg gcc tct  gcc cgg cgc cgg ttg         18586
Val Glu Tyr Leu Gly  Ser Arg Leu Ala Ser  Ala Arg Arg Arg Leu
              1495             1500             1505

ctg gtg ttg gac gcg  gtg gcc ctc gag agg  tgg ccc agg gat gga         18631
Leu Val Leu Asp Ala  Val Ala Leu Glu Arg  Trp Pro Arg Asp Gly
              1510             1515             1520

ccc gct ttg tct cag  tat cac gtg tac gtc  cgg gcc ccg gcg cga         18676
Pro Ala Leu Ser Gln  Tyr His Val Tyr Val  Arg Ala Pro Ala Arg
              1525             1530             1535

ccg gac gcc cag gcc  gtc gtc cga tgg cca  gac tcg gcg gtc aca         18721
Pro Asp Ala Gln Ala  Val Val Arg Trp Pro  Asp Ser Ala Val Thr
              1540             1545             1550

gaa gga ctc gcc cgg  gcc gtg ttt gca tcg  tcg cgc acc ttt ggg         18766
Glu Gly Leu Ala Arg  Ala Val Phe Ala Ser  Ser Arg Thr Phe Gly
              1555             1560             1565

cca gcg agt ttt gct  cgt atc gag act gcg  ttt gcc aac ctg tac         18811
Pro Ala Ser Phe Ala  Arg Ile Glu Thr Ala  Phe Ala Asn Leu Tyr
              1570             1575             1580
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ccg ggc gaa caa ccc  ctg tgt ttg tgc cgc  ggt ggg aac gtc gca    18856
Pro Gly Glu Gln Pro  Leu Cys Leu Cys Arg  Gly Gly Asn Val Ala
            1585                 1590                 1595

tac acc gtg tgt acc  cgc gcg ggc ccc aag  acc cgc gtc ccc ctg    18901
Tyr Thr Val Cys Thr  Arg Ala Gly Pro Lys  Thr Arg Val Pro Leu
            1600                 1605                 1610

tcg ccc cgt gaa tac  cgg cag tac gtg ctg  ccg ggt ttt gac ggt    18946
Ser Pro Arg Glu Tyr  Arg Gln Tyr Val Leu  Pro Gly Phe Asp Gly
            1615                 1620                 1625

tgc aag gac ctc gcg  cga cag tct cgg ggt  ctg ggg ctc ggg gca    18991
Cys Lys Asp Leu Ala  Arg Gln Ser Arg Gly  Leu Gly Leu Gly Ala
            1630                 1635                 1640

gcc gac ttt gtg gac  gag gcg gca cat agc  cac cgc gca gca aac    19036
Ala Asp Phe Val Asp  Glu Ala Ala His Ser  His Arg Ala Ala Asn
            1645                 1650                 1655

cga tgg ggc ctg ggt  gcc gcg ctt cga ccc  gtc ttc ctt ccc gag    19081
Arg Trp Gly Leu Gly  Ala Ala Leu Arg Pro  Val Phe Leu Pro Glu
            1660                 1665                 1670

gga cgg aga ccg ggg  gcc gcc ggg ccg gag  gcc ggc gac gta ccc    19126
Gly Arg Arg Pro Gly  Ala Ala Gly Pro Glu  Ala Gly Asp Val Pro
            1675                 1680                 1685

acc tgg gcg agg gtg  ttt tgc cgc cac gcc  ctg ctg gaa ccc gac    19171
Thr Trp Ala Arg Val  Phe Cys Arg His Ala  Leu Leu Glu Pro Asp
            1690                 1695                 1700

cct gcc gca gaa cca  ctc gtg ctt cca ccc  gtg gcc ggt cgg tcg    19216
Pro Ala Ala Glu Pro  Leu Val Leu Pro Pro  Val Ala Gly Arg Ser
            1705                 1710                 1715

gtg gcg ctg tat gcg  tcg gcg gac gag gct  cgg aat gcc ctc ccc    19261
Val Ala Leu Tyr Ala  Ser Ala Asp Glu Ala  Arg Asn Ala Leu Pro
            1720                 1725                 1730

ccg att ccc aga gta  atg tgg ccg ccc ggt  ttt ggg gcc gcg gag    19306
Pro Ile Pro Arg Val  Met Trp Pro Pro Gly  Phe Gly Ala Ala Glu
            1735                 1740                 1745

acg gtg ttg gag ggg  agc gac gga aca cgg  ttc gtg ttc gga cac    19351
Thr Val Leu Glu Gly  Ser Asp Gly Thr Arg  Phe Val Phe Gly His
            1750                 1755                 1760

cac ggg ggc tcg gaa  cgg ccg tca gaa acc  cag gcg ggg cga cag    19396
His Gly Gly Ser Glu  Arg Pro Ser Glu Thr  Gln Ala Gly Arg Gln
            1765                 1770                 1775

cgg cgc acc gca gac  gac aga gaa cac gct  ttg gag ctg gac gat    19441
Arg Arg Thr Ala Asp  Asp Arg Glu His Ala  Leu Glu Leu Asp Asp
            1780                 1785                 1790

tgg gag gtg ggg tgt  gaa gac gcg tgg gac  agc gag gag ggg ggc    19486
Trp Glu Val Gly Cys  Glu Asp Ala Trp Asp  Ser Glu Glu Gly Gly
            1795                 1800                 1805

ggg gac gac ggg gac  gca ccg ggg tca tcc  ttt ggg gtg agc atc    19531
Gly Asp Asp Gly Asp  Ala Pro Gly Ser Ser  Phe Gly Val Ser Ile
            1810                 1815                 1820
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gtg tcg gtg gcc ccg  ggt gtg ctg cga gac  cgc cgg gtg ggt ttg     19576
Val Ser Val Ala Pro  Gly Val Leu Arg Asp  Arg Arg Val Gly Leu
            1825              1830                         1835

cgc ccg gcg gtc aag  gtg gag ctg ttg tcc  tcg tcc tcg tcc tcc     19621
Arg Pro Ala Val Lys  Val Glu Leu Leu Ser  Ser Ser Ser Ser Ser
            1840              1845                         1850

gag gac gag gac gat  gtg tgg gga ggg cgc  ggg ggg agg agc ccc     19666
Glu Asp Glu Asp Asp  Val Trp Gly Gly Arg  Gly Gly Arg Ser Pro
            1855              1860                         1865

ccg cag agt cgg ggg  tga cggagtcccc tccttttctc gtgagcgcca        19714
Pro Gln Ser Arg Gly
            1870
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ctggcgcgcg gactgtttgt tgttaataaa agcggaacgg tttttatgaa aaaagtgtct   19774

gtctgtctgt gcgggcgggc gacgggcggg ctggtcggac ccccccccga aaataacccc   19834

cccccggttt ctgggcgccc ggcggacccc gggagaggag gccagccctc tcgcggcccc   19894

ctcgagagag aaaaaaaaaa gcgaccccac ctccccgcgc gtttgcgggg cgaccatcgg   19954

gggggacttg cattaccctà tcccagtatt gtttgtacgc ctctaatgga gtaactgtcc   20014

caatacaccc gacttcctat atacagtgct tttgtttgtg gacttacctt tatttacggg   20074

tattacaggg gggtggagaa atgtcttcgt atcgctcttt atctaaataa agacagaatc   20134

taaaatgtca cttagctgta tacccggccc aaggttatac caatcaactt ccctgtttgt   20194

tgggactgtc cgcctacccc aatacacatt ttatacccac gttttagtgg gtgggactta   20254

aaagaaatgg gtggagggat ataggggtgt gtcttcgttg gtaccaatta taaaaatgta   20314

ctcgccacaa ctcacaattt agaacgcatg gcagttctgc tacgtgtttg gatgcccgga   20374

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cattagaata cagccagttg ttacc atg gat acc ata tta  gcg ggc ggt agc   20426
                            Met Asp Thr Ile Leu  Ala Gly Gly Ser
                                          1875

ggc  acc tcc gac gct tcg  gat aat acc tgc acc  ata tgc atg agc    20471
Gly  Thr Ser Asp Ala Ser  Asp Asn Thr Cys Thr  Ile Cys Met Ser
1880              1885              1890

acc  gtt tcc gat ctc gga  aaa acc atg ccg tgt  ttg cac gac ttc    20516
Thr  Val Ser Asp Leu Gly  Lys Thr Met Pro Cys  Leu His Asp Phe
1895              1900              1905

tgc  ttt gtt tgt att cgg  gca tgg acc tcc acc  agc gtc cag tgt    20561
Cys  Phe Val Cys Ile Arg  Ala Trp Thr Ser Thr  Ser Val Gln Cys
1910              1915              1920

cct  ctc tgc cgg tgt cca  gtg caa tcc atc ctg  cat aag atc gta    20606
Pro  Leu Cys Arg Cys Pro  Val Gln Ser Ile Leu  His Lys Ile Val
1925              1930              1935

agt  gat aca agt tac aag  gaa tat gaa gtg cac  cca tcc gac gac    20651
Ser  Asp Thr Ser Tyr Lys  Glu Tyr Glu Val His  Pro Ser Asp Asp
1940              1945              1950
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gat ggt ttt tct gag ccg   tca ttt gaa gat tcc   atc gac atc cta        20696
Asp Gly Phe Ser Glu Pro   Ser Phe Glu Asp Ser   Ile Asp Ile Leu
1955                1960                 1965

ccg gga gat gtc ata gat   ctt ctg cca cca agc   cca gga ccg agt        20741
Pro Gly Asp Val Ile Asp   Leu Leu Pro Pro Ser   Pro Gly Pro Ser
1970                1975                 1980

cgg gag tcc atc caa cag   cca aca tca aga tcg   agt cgg gag ccc        20786
Arg Glu Ser Ile Gln Gln   Pro Thr Ser Arg Ser   Ser Arg Glu Pro
1985                1990                 1995

att caa tca cca aac cct   ggg ccc ctt caa tcg   tcg gct aga gag        20831
Ile Gln Ser Pro Asn Pro   Gly Pro Leu Gln Ser   Ser Ala Arg Glu
2000                2005                 2010

ccc aca gca gag tca cca   agt gac tct caa cag   gat tct ata caa        20876
Pro Thr Ala Glu Ser Pro   Ser Asp Ser Gln Gln   Asp Ser Ile Gln
2015                2020                 2025

cca ccg acc cga gac tcg   agc cct ggt gta acc   aaa aca tgc tct        20921
Pro Pro Thr Arg Asp Ser   Ser Pro Gly Val Thr   Lys Thr Cys Ser
2030                2035                 2040

acc gca tca ttt tta cgg   aag gta ttt ttt aaa   gac caa cct gct        20966
Thr Ala Ser Phe Leu Arg   Lys Val Phe Phe Lys   Asp Gln Pro Ala
2045                2050                 2055

gtt cga tcg gcg acc ccg   gtg gtg tat ggc tcg   att gaa tct gca        21011
Val Arg Ser Ala Thr Pro   Val Val Tyr Gly Ser   Ile Glu Ser Ala
2060                2065                 2070

cag caa ccc cgg acc ggg   ggg cag gac tac cgt   gat cgt cca gta        21056
Gln Gln Pro Arg Thr Gly   Gly Gln Asp Tyr Arg   Asp Arg Pro Val
2075                2080                 2085

tct gtg gga att aat caa   gac cca cga acc atg   gac aga ctg cct        21101
Ser Val Gly Ile Asn Gln   Asp Pro Arg Thr Met   Asp Arg Leu Pro
2090                2095                 2100

ttt cga gcc acg gat aga   gga aca gag gga aac   gcg aga ttc ccg        21146
Phe Arg Ala Thr Asp Arg   Gly Thr Glu Gly Asn   Ala Arg Phe Pro
2105                2110                 2115

tgt tac atg caa cct tta   ctc gga tgg ctt gat   gat caa ctt gcg        21191
Cys Tyr Met Gln Pro Leu   Leu Gly Trp Leu Asp   Asp Gln Leu Ala
2120                2125                 2130

gaa ctg tat caa ccc gaa   att gta gag cct aca   aaa atg ttg ata        21236
Glu Leu Tyr Gln Pro Glu   Ile Val Glu Pro Thr   Lys Met Leu Ile
2135                2140                 2145

tta aac tat ata ggt att   tac ggg cgt gat gag   gcg gga tta aaa        21281
Leu Asn Tyr Ile Gly Ile   Tyr Gly Arg Asp Glu   Ala Gly Leu Lys
2150                2155                 2160

aca tcc ctg cgt tgt ctt   ttg cat gat tca aca   gga ccg ttt gta        21326
Thr Ser Leu Arg Cys Leu   Leu His Asp Ser Thr   Gly Pro Phe Val
2165                2170                 2175

aca aac atg tta ttc ttg   ttg gat cga tgt acc   gat cca acc cgc        21371
Thr Asn Met Leu Phe Leu   Leu Asp Arg Cys Thr   Asp Pro Thr Arg
2180                2185                 2190
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cta acc atg caa acc tgg  acc tgg aaa gat aca  gcc atc caa cta      21416
Leu Thr Met Gln Thr Trp  Thr Trp Lys Asp Thr  Ala Ile Gln Leu
2195             2200                 2205

att aca ggt cca att gta  aga cca gaa acc acc  tca acc ggg gag      21461
Ile Thr Gly Pro Ile Val  Arg Pro Glu Thr Thr  Ser Thr Gly Glu
2210             2215                 2220

acc tct cgt ggc gat gaa  agg gat acc cga ttg  gta aat aca ccc      21506
Thr Ser Arg Gly Asp Glu  Arg Asp Thr Arg Leu  Val Asn Thr Pro
2225             2230                 2235

caa aaa gtc agg ctt ttt  tct gtg tta ccg ggg  att aaa ccg gga      21551
Gln Lys Val Arg Leu Phe  Ser Val Leu Pro Gly  Ile Lys Pro Gly
2240             2245                 2250

agc gca agg ggt gct aag  cgc cgt tta ttt cat  acc ggc aga gac      21596
Ser Ala Arg Gly Ala Lys  Arg Arg Leu Phe His  Thr Gly Arg Asp
2255             2260                 2265

gtt aaa cga tgc tta aca  ata gac ctg aca tct  gag tct gat tcg      21641
Val Lys Arg Cys Leu Thr  Ile Asp Leu Thr Ser  Glu Ser Asp Ser
2270             2275                 2280

gca tgt aag gga agt aaa  acc cgc aaa gtt gcc  tct cca cag ggg      21686
Ala Cys Lys Gly Ser Lys  Thr Arg Lys Val Ala  Ser Pro Gln Gly
2285             2290                 2295

gag tcc aat acc ccc tcc  acc tcc gga tca aca  tca ggt tca ctg      21731
Glu Ser Asn Thr Pro Ser  Thr Ser Gly Ser Thr  Ser Gly Ser Leu
2300             2305                 2310

aaa cac ctt acc aaa aaa  agc tct gcc ggt aaa  gcg ggt aaa ggt      21776
Lys His Leu Thr Lys Lys  Ser Ser Ala Gly Lys  Ala Gly Lys Gly
2315             2320                 2325

att cca aac aag atg aag  aag tcc tag tttgttggga gggggaagga        21823
Ile Pro Asn Lys Met Lys  Lys Ser
2330             2335
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aatgccttaa acatccacag tctgctttat taccaactgt atgtaaatta tgatcattaa   21883

acgtgcattt taaaaatacc tgagtgttgc tattggtcgt aagggttggt atatctggaa   21943

cccaaggtgt aaatactgcc ccctggtaag tccgtacacg attcggaatg cccgcaatcc   22003

ggtctcggag taaccggggc atcctgctct gcaaatacaa taaacataac agtctaacag   22063

tacgcatgtg ctgtcgtaag cgctccgccc taaattacaa aaatttgaga ttacgctcaa   22123

tacttgtcac cgtttgtatt tatacacctc tacgggagca aactaaaggt acttggag   22183

atgcaaccaa ggccgagttg agacgggaaa attagaagct gtttttccag cggcaaaaat   22243

catccggttt gggtatgtct tatagcaatt aaagttatta aaatggccgg aaggtggcgg   22303

gggtggtgaa ggcgagggta aagcaaactt gcggggggat aaaaggcata tatgttacaa   22363

aatacgcacg caaatataaa ttttagtttt gtacttacag taaaggcaac ggtgttttcg   22423

gtttaggcag ccggacccgt ttaaaatgcc aactggatag tctgcaagga ggaaacgctg   22483

```
ctgcaatgag tcaggttttt aggtgaatta ggtatgatgc atcatttttg ttaatggact  22543

tttaatggat tgaaacggat agaaggaaac gtgtagcata atggatattg gttgatattt  22603

taagcacgct gccaagtacg cactaagaat gcttagaaat atttaaactg aaatgcgtgg  22663

gtttggcaaa cgttaccgta aatcaatctc agatccaagg gataatggcc gttgggcagg  22723

cctccaaaag gcaatttgag cgttttaagt ttggggtacg tttttaaagc ttgattggca  22783

aacgttaccg caaatcaatc ttagatccaa gggataatgg ccgttgggca ggcctccaaa  22843

aggcaatttg agcgttttca gtccgcttga aaacggtcta agtatttgcc gtaaatgacc  22903

gcgagaggta taatataaac atctgttttc ccgatgacgt gttaagaaaa gtgattatat  22963

cagataacgg gggactgtaa agcttaatac gtgacatgtg attgggtgta taaatactac  23023

atccaaatct tgcatggaaa ttcgctttgt cggcacgccg tgacgtttga catattaaga  23083

tcgccctttt taggaaaatg agatatgaca ccaagagttt aactaaaggc caactgtata  23143

tataaaactc atacttgtcc atgcttccat tagagtggtc aagtttttca aaggatacga  23203

caacgtcgta gtgaagggaa aacacaagcg tcatggcatc acataaatgg ttactgcaga  23263

tagttttttt aaaaactatc acaatcgcgt attgtcttca tctccaagac gacactccgt  23323

tgttttttgg agccaaaccg ctatcggatg tgagtttgat tataacggaa ccgtgcgtgt  23383

catcggtata tgaggcgtgg gactatgcgg caccccggt atcaaacctc agcgaggcgc  23443

tatcgggaat cgtggttaag acaaaatgtc cagtaccgga agttatactt tggtttaaag  23503

acaaacaaat ggcgtactgg acaaatccat acgtcacctt aaaggggctg gcacaatctg  23563

ttggtgaaga acataaaagc ggggacatac gcgatgcttt gttggatgcc ctttccggtg  23623
```

```
tatgggtaga ctctactcca tcttccacaa atatcccgga aa atg gat gtg  tct      23677
                                                 Met Asp Val  Ser
                                                          2340
```

```
ggg gag ccg acc  gtt tgt tcc aac gcg  tat gcc aat gaa atg  aaa       23722
Gly Glu Pro Thr  Val Cys Ser Asn Ala  Tyr Ala Asn Glu Met  Lys
            2345                 2350                 2355
```

```
cta tcg gat tca  aag gac att tat gtt  ttg gcc cat ccg gtt  acc       23767
Leu Ser Asp Ser  Lys Asp Ile Tyr Val  Leu Ala His Pro Val  Thr
            2360                 2365                 2370
```

```
aaa aaa acc cgc  aag cga ccc cgc ggg  ctg cct ttg ggg gtt  aag       23812
Lys Lys Thr Arg  Lys Arg Pro Arg Gly  Leu Pro Leu Gly Val  Lys
            2375                 2380                 2385
```

```
cta gac ccc cca  acc ttc aag tta aat  aac atg tca cat cat  tac       23857
Leu Asp Pro Pro  Thr Phe Lys Leu Asn  Asn Met Ser His His  Tyr
            2390                 2395                 2400
```

```
gac acg gaa acg  ttc acc ccc gtc tct  tcg caa ctg gat tcg  gtt       23902
Asp Thr Glu Thr  Phe Thr Pro Val Ser  Ser Gln Leu Asp Ser  Val
            2405                 2410                 2415
```

```
gaa gtt ttc agc  aag ttt aac att tcc  cct gag tgg tat gac  ctg       23947
Glu Val Phe Ser  Lys Phe Asn Ile Ser  Pro Glu Trp Tyr Asp  Leu
```

```
Glu Val Phe Ser  Lys Phe Asn Ile Ser  Pro Glu Trp Tyr  Asp Leu
              2420              2425              2430

ttg tcg gac gaa  ctt aaa gag ccg tac  gcg aaa ggt att ttt  tta      23992
Leu Ser Asp Glu  Leu Lys Glu Pro Tyr  Ala Lys Gly Ile Phe  Leu
              2435              2440              2445

gaa tac aat cgt  ctt tta aat tca ggg  gaa gaa ata ctt cca  tct      24037
Glu Tyr Asn Arg  Leu Leu Asn Ser Gly  Glu Glu Ile Leu Pro  Ser
              2450              2455              2460

aca ggc gat att  ttt gca tgg acg cga  ttt tgc gga ccc cag  agc      24082
Thr Gly Asp Ile  Phe Ala Trp Thr Arg  Phe Cys Gly Pro Gln  Ser
              2465              2470              2475

att cgc gtt gta  att att ggt caa gat  cca tac cct acc gcg  gga      24127
Ile Arg Val Val  Ile Ile Gly Gln Asp  Pro Tyr Pro Thr Ala  Gly
              2480              2485              2490

cat gca cat ggg  cta gcg ttt agt gta  aaa cgt ggc ata aca  cca      24172
His Ala His Gly  Leu Ala Phe Ser Val  Lys Arg Gly Ile Thr  Pro
              2495              2500              2505

ccg tct agt ctt  aaa aat att ttt gcg  gcc ctc atg gaa tca  tac      24217
Pro Ser Ser Leu  Lys Asn Ile Phe Ala  Ala Leu Met Glu Ser  Tyr
              2510              2515              2520

cca aat atg act  ccg ccc act cac gga  tgc ctg gag agt tgg  gca      24262
Pro Asn Met Thr  Pro Pro Thr His Gly  Cys Leu Glu Ser Trp  Ala
              2525              2530              2535

agg cag ggg gtg  tta ttg ctg aat acc  acg ctt acg gtt cgt  cgc      24307
Arg Gln Gly Val  Leu Leu Leu Asn Thr  Thr Leu Thr Val Arg  Arg
              2540              2545              2550

ggg act ccg ggg  tcg cat gta tac tta  ggc tgg ggg cgg ctg  gtg      24352
Gly Thr Pro Gly  Ser His Val Tyr Leu  Gly Trp Gly Arg Leu  Val
              2555              2560              2565

caa cgc gtg cta  cag agg tta tgc gag  aac cgt aca ggg tta  gtt      24397
Gln Arg Val Leu  Gln Arg Leu Cys Glu  Asn Arg Thr Gly Leu  Val
              2570              2575              2580

ttt atg ctg tgg  ggt gcg cat gca cag  aag aca acc caa ccg  aat      24442
Phe Met Leu Trp  Gly Ala His Ala Gln  Lys Thr Thr Gln Pro  Asn
              2585              2590              2595

tca aga tgt cat  ctg gtg cta aca cac  gcg cat ccg tcg cca  ttg      24487
Ser Arg Cys His  Leu Val Leu Thr His  Ala His Pro Ser Pro  Leu
              2600              2605              2610

tcc cgt gtt cca  ttt cgg aat tgt cga  cat ttc gtt caa gcc  aat      24532
Ser Arg Val Pro  Phe Arg Asn Cys Arg  His Phe Val Gln Ala  Asn
              2615              2620              2625

gag tat ttt acg  cgt aaa ggc gaa ccc  gag atc gat tgg agt  gtt      24577
Glu Tyr Phe Thr  Arg Lys Gly Glu Pro  Glu Ile Asp Trp Ser  Val
              2630              2635              2640

ata taa cactccaatc gaccctcttg cgtaccataa tgttttcgga gttgcctcct      24633
Ile
```

```
tccgtaccga cggcattgct tcaatggggt tggggattgc atcgtggacc gtgttcgatc  24693

ccaaatttta aacaggtagc cagccaacac agtgttcaga acgattttac agaaaatagc  24753

gttgatgcaa atgaaaaatt tccgattggg cacgcgggct gtattgagaa aaccaaagac  24813

gactatgtac catttgatac gttgttcatg gtatcatcta ttgacgaact tgggcggaga  24873

caattaaccg acaccatccg ccgcagcttg gttatgaacg cctgtgaaat aacggtcgcg  24933

tgtacgaaaa ccgcagcctt ttctggtcga ggcgtgtcac gacaaaaaca cgtgacccta  24993

tctaaaaata aattcaatcc atccagtcat aagagcctgc aaatgtttgt gttgtgtcaa  25053

aaaacccatg caccccgtgt cagaaaccta ctgtacgaga gtattcgtgc aagaagacct  25113

cgccgatatt acacccgctc aacggacgga aaatcgcgtc cgttggtacc agtgtttgtg  25173

tatgagttta cggctttaga tcgtgtcctt ttacataagg aaaatacttt gaccgaccaa  25233
```

```
ccaattaata ctgaaaatag cggtc atg gac gta  cga gaa cgt aat gtg  ttt  25285
                               Met Asp Val  Arg Glu Arg Asn Val  Phe
                                        2645              2650
```

```
gga aat gcc agc  gtt gcc acg ccg ggg  gaa cat cag aaa ttt  gta  25330
Gly Asn Ala Ser  Val Ala Thr Pro Gly  Glu His Gln Lys Phe  Val
            2655              2660              2665
```

```
cgc gag tta att  ttg tcg gga cac aac  aac gtc gta tta cag  aca  25375
Arg Glu Leu Ile  Leu Ser Gly His Asn  Asn Val Val Leu Gln  Thr
            2670              2675              2680
```

```
tac act ggt aaa  tgg tca gac tgc cgt  aaa cac ggt aaa tcg  gtt  25420
Tyr Thr Gly Lys  Trp Ser Asp Cys Arg  Lys His Gly Lys Ser  Val
            2685              2690              2695
```

```
atg tat aat acc  ggt gaa gcg cgg cac  cca acc tgc aag gct  cat  25465
Met Tyr Asn Thr  Gly Glu Ala Arg His  Pro Thr Cys Lys Ala  His
            2700              2705              2710
```

```
caa cgt taa gaggataggt gtcttcaaat taaaagccgt taaatataaa       25514
Gln Arg
```

```
ttttttgtgt cgtttattcg cgtatgaaat gtaatcagtt gggataaatg ttagtcttga  25574

atctgtcttt acgcgtttgc ggcgtcccgt aatattaacg aaagaacgtc gtcgtctgat  25634

gtgaaaaagg ccggttgtgg tgaagaagga cagttggttt caggctgccg cctttgcgat  25694

gtatactggt gcggggttgg tgttggtgtg gtctgatcgt caggtctgtt tacccgtaaa  25754

ccgtatataa caattgagat acacatggat aggtcatctt ccgttattac ggatagtacc  25814

cccccacat tactgtacag ctgagatgtt gggtcagaac cgacccagga cataaacggc  25874

atcgcaaatg ttgcgtgggg tttgtcctgt aagtggaaat cccggtgcgt aaatgcgtat  25934

gatgaaaagt cagtagaaca gtctatggtt agcagggtca ctgtatgggt gtgttgaagg  25994

acgatcatac caccgctcat tgtatcacat cgagcgtccg tcttcaccgc cattgatctt  26054

gacccacccg taaatgcgta gagtgtttgt tcatgatccg gtaaagtcca gtgaagaacc  26114
```

```
cgcctaaccc catgtaacct atataaaata aacgtcgttg ggggtccaga gatgctcatg   26174

gcgggtgtat ttaagacaaa acctagaaat gagaacagca agcccgcatg cgtgttttta   26234

tacaatgctt taatacacaa cgtgtacgtt gggatcacgt agagcggcaa gaatgtgatc   26294

gctaatttct gcggattttt catatcgttc ccgtagaggg tttagattca tttttaagaa   26354

cctagaggag accgtacgcg acatggcaac atacacacta tttaggcgca gtttatccgc   26414

cgtaaaacag atagctacct tctctaaact cagaccctgt gagcgtgcaa ttgtcatggc   26474

tagtttagaa ctaaggccat agtccaccgt ggtggccatt gccaattctg catcctctat   26534

agactcggta aattcacata cgttagcgtt tacgatggac acaaacccat gttgatcctg   26594

taagaccata agaggtacgt gtagagcata taacatttcg gtagtttcgc ggtacagctt   26654

ttttcgggtc agttcctcta caaagactgg cacgggtgca aaagtatacc ccaaaagggt   26714

atacgtatct gtttgtaatg ccaaagataa cagccccccc cgcacattgc cgatcaaaag   26774

ctcgcttccg ttgaaattaa cattatcgac atacgcgcta aaggggggcgg ttgtaaagct   26834

gctttcgaaa agctctgcta atatggcata tcgaccatcg taaatagctt tcattaacag   26894

aaactgagca tggacctcat tggatgattt gggataggaa aattcgtact ggcagtatac   26954

caagtcaata acctcgtcgt taagtgccgt aaaaattaca tcatccgggt cttcgggtat   27014

ggaggccgtt actttggact cggggggcttt ggtaaagcag aaggctttat cggcagaagt   27074

agctgcacca tcacagtcaa tcccggcacc cgccccatta accgctgctt cgtgtaaggg   27134

ggctttgttt gttccagaca ataactccag ggttaaggca gctaaccgtt tgtatgctaa   27194

cgatacctta tcgggatgta ggtttttatt taacaaaaaa ttgtaaaagt taatcaagcc   27254

tccaaagatt aggtttgaca gaaaccggta agcatattcg atggatgtct ctcctcgagc   27314

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gtctgtacgg gctacaatta agtcgcgatt tgaatgtgtt tcgtatttaa ctgttcccat   27494

gtcatgatct cggctttggg aataattgtg caaacgaccg gagtttgccc gtatccaatg   27554

ttcaacagaa agtccgggtt gtcccgttaa tttgcggtat tcatcaaatg ccgttagccg   27614

gatgaatgta taagtcggta aggcaaacac agaaaaatgg tcatttttcg atagttttaa   27674

atgcgcgtgt aacttactca tatacgcgct cacctcctta tgcgacgaat acagacgcgt   27734

ccatccggga agattagcag gattgttaat ataggatgca ggtacaacaa atgtatcgac   27794

cagacgcgca tgtgcttcgg taataggtag cccgtactca agcgtttta aaagatttcc     27854

aaaatcgtcc tcttgacatc gtttgttatt aataaagatt gcccagttat gtgagatgtt   27914

agtatattga cgcagagttt gattgcagat tatatacgtg agtatatttt cactaggagt   27974
```

```
tacgtgtgaa cgctgcatgt catgttgaaa atgagattct aacgagtcag tttgggtggg   28034

cgaaccgacg catactatga ccggttttcg accgtttatg tactgagggc tttgatatat   28094

agcattcaaa agccaccaac agtaaacaac ggccgtgaga atatgacgcc ctagcaatcc   28154

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aaacgcggtt ccggacattg agcctgtagg tttattaagc aaacgttcaa ttgcccacag   28274

ggttttaaat gtcgatgttc ctccgcgacc gtcgtccccc atttgaaaca ctcgttttgt   28334

tatatcaatt aaaacttccc agtagtatac aatatctctt ttttgcaggt cctcaataga   28394

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gcgaaaacca aattcatgaa agattgtgtt tatcggacga ctcgcataag ccgttgataa   28514

cttagcatga acattttggg cagcaaccct ggtggatccg gtaataatgc aatcgatagc   28574

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aacggagaag gggagctcat tcctctgcat ttcaggaggc gcttgcagtt cgagtaactg   28694

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ccggtagtga agaaaaaagg atagcaagtt ctgtttctat tgaccagggc ttgaatggaa   28994

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aggtacgatc agaacagaat ggaacccctg caccattaaa tacgtatatg ggtcaagcgg   29594

cagaactgtc ccagatgtta aaagttgccg atgcaacgtt ggccagagga gcggcggttg   29654

tcacaagcct agttgagtgt atgcaaaatg ttgctattat ggattatgat aggacgcgtc   29714

tttattataa ttataaccga agattaatta tggcaaagga tgatgtaacg ggcatgaagg   29774

gagagtgttt ggtcgtgtgg ccgcccgttg tatgtgggga gggtgtagta tttgactcac   29834

ccttacagcg gctttctggg gaggtgttgg cctgttatgc attacgtgaa catgctcgcg   29894
```

```
tctgccaagt tttaaataca gccccttttgc gcgtgttaat aggtcgccgg aatgaagatg   29954

atagatctca cagcacacgt gcggttgatc gtataatggg cgagaacgat acaacacggg   30014

ctggatcggc cgcgtctaga cttgtaaagc taatagttaa cttaaaaaac atgagacatg   30074

ttggagatat taccgaaacc gtacgttcct atctagaaga aacgggcaat cacattctgg   30134

aaggaagtgg atcggtggac acatcacaac cggggtttgg caaggccaac caatccttta   30194

acgggggggc aatgtccgga caacaaacg ttcaaagtgc gtttaaaact tcggtggtta    30254

acagtatcaa cggcatgctc gagggttatg tgaataattt attcaaaacc attgagggtc   30314

tcaaggatgt gaacagcgat ctgaccgaaa ggctccagtt caaagaagga gagctgaaac   30374

ggttacggga agagagggta aaaataaagc catctaaagg gtcacatatt acaatggcag   30434

aagaaacacg tattgccgat ttaaatcacg aggttataga tcttaccggc ataataggggg   30494

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taaaacgttt gtctgagcta tggaaacagg aacttgttcg ctgttttaag cttcaccggg   30614

taaacaataa tcaaggccag gaaatttctg tatcatattc aaatgcgtca atctcattac   30674

tagttgcgcc gtatttttca ttcatattac gggccacccg attaggattc ttggtaactc   30734

aaagcgaggt acataggtca gaggaagagt tatgccaggc tatttttaaa aaggcgagaa   30794

cagagtccta tttatcccaa atccgaatat tatatgaaat gcaggttcgc gcagaggtaa   30854

taaaacgggg cccacggaga acaccaagtc cttcctgggg tttgcctgac cctacagaag   30914

atgacgaaag aatcccggaa cccaataaaa taaataacca atacatgcat gttggatata   30974

aaaacctatc ccattttatg aaaggacacc cccctgagag gttacgggta cacaaggtaa   31034
```

```
atg cag  cgg att cga cct tac  tgg ata aaa ttc gag  caa acc gga     31079
Met Gln  Arg Ile Arg Pro Tyr  Trp Ile Lys Phe Glu  Gln Thr Gly
    2715              2720              2725

ggc gcg  ggg atg gcc gat ggg  atg tcc gga ata aat  ata ccc agc     31124
Gly Ala  Gly Met Ala Asp Gly  Met Ser Gly Ile Asn  Ile Pro Ser
    2730              2735              2740

att tta  ggt tgc agc gta acg  atc gac aac tta cta  aca cga gcc     31169
Ile Leu  Gly Cys Ser Val Thr  Ile Asp Asn Leu Leu  Thr Arg Ala
    2745              2750              2755

gaa gag  ggg ttg gat gtg agc  gac gtg atc gaa gat  ctt aga ata     31214
Glu Glu  Gly Leu Asp Val Ser  Asp Val Ile Glu Asp  Leu Arg Ile
    2760              2765              2770

caa gca  ata cca aga ttc gta  tgc gag gcg cgg gag  gta acc ggt     31259
Gln Ala  Ile Pro Arg Phe Val  Cys Glu Ala Arg Glu  Val Thr Gly
    2775              2780              2785

ttg aag  cca cgc ttt ttg gca  aac tct gtt gta tca  ctg cgc gta     31304
Leu Lys  Pro Arg Phe Leu Ala  Asn Ser Val Val Ser  Leu Arg Val
    2790              2795              2800
```

```
aaa ccg gaa cac caa gag acc   gtt tta gta gtg ttg   aat ggt gat        31349
Lys Pro Glu His Gln Glu Thr   Val Leu Val Val Leu   Asn Gly Asp
    2805                2810                  2815

tca agt gag gtg tcc tgt gat   cgt tac tac atg gag   tgt gtt act        31394
Ser Ser Glu Val Ser Cys Asp   Arg Tyr Tyr Met Glu   Cys Val Thr
    2820                2825                  2830

caa cca gcg ttc cgc gga ttt   att ttt tcc gta tta   act gcg gtt        31439
Gln Pro Ala Phe Arg Gly Phe   Ile Phe Ser Val Leu   Thr Ala Val
    2835                2840                  2845

gaa gat agg gtg tat acg gtg   ggg gtg cct ccg cgc   ctg tta atc        31484
Glu Asp Arg Val Tyr Thr Val   Gly Val Pro Pro Arg   Leu Leu Ile
    2850                2855                  2860

tat cgg atg act cta ttc cgc   ccg gat aat gtc cta   gat ttt acc        31529
Tyr Arg Met Thr Leu Phe Arg   Pro Asp Asn Val Leu   Asp Phe Thr
    2865                2870                  2875

tta tgt gtt att tta atg tat   ctg gaa ggc att ggg   ccc tcc ggg        31574
Leu Cys Val Ile Leu Met Tyr   Leu Glu Gly Ile Gly   Pro Ser Gly
    2880                2885                  2890

gca tct cca tcg ctg ttt gta   caa ttg tct gta tat   ctt aga cgc        31619
Ala Ser Pro Ser Leu Phe Val   Gln Leu Ser Val Tyr   Leu Arg Arg
    2895                2900                  2905

gtt gag tgt caa ata gga cct   ttg gaa aaa atg cgt   cgg ttt tta        31664
Val Glu Cys Gln Ile Gly Pro   Leu Glu Lys Met Arg   Arg Phe Leu
    2910                2915                  2920

tat gag gga gtt tta tgg ttg   tta aac act cta atg   tat gtc gtt        31709
Tyr Glu Gly Val Leu Trp Leu   Leu Asn Thr Leu Met   Tyr Val Val
    2925                2930                  2935

gat aac aac ccc ttt aca aaa   acc cgc gta ttg ccg   cat tat atg        31754
Asp Asn Asn Pro Phe Thr Lys   Thr Arg Val Leu Pro   His Tyr Met
    2940                2945                  2950

ttt gtt aag tta ctg aac cct   cag cct gga acg gcc   ccc aat att        31799
Phe Val Lys Leu Leu Asn Pro   Gln Pro Gly Thr Ala   Pro Asn Ile
    2955                2960                  2965

ata aag gct ata tat tca tgt   ggg gtg ggt cag cgt   ttt gac ctg        31844
Ile Lys Ala Ile Tyr Ser Cys   Gly Val Gly Gln Arg   Phe Asp Leu
    2970                2975                  2980

ccc cac gga acc ccc ccc tgt   cca gat ggt gtg gtg   caa gta ccc        31889
Pro His Gly Thr Pro Pro Cys   Pro Asp Gly Val Val   Gln Val Pro
    2985                2990                  2995

ccg gga ttg tta aat gga cct   tta cga gat tcg gaa   tat cag aag        31934
Pro Gly Leu Leu Asn Gly Pro   Leu Arg Asp Ser Glu   Tyr Gln Lys
    3000                3005                  3010

agc gta tat ttt tgg tgg tta   aat cgc acc atg gta   aca ccg aaa        31979
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    3015                3020                  3025

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Asn Val Gln Leu Phe Glu Thr   Tyr Lys Asn Ser Pro   Arg Val Val
    3030                3035                  3040
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Ser Asn Phe Val  Gln Ile Arg Thr Ile  Pro Arg Val Met Asp  Ile
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            3480               3485                   3490

tcg gat act gtt  ccg gtt gat gtt tct  gtc acg gaa agg cat  gag     55977
Ser Asp Thr Val  Pro Val Asp Val Ser  Val Thr Glu Arg His  Glu
            3495               3500                   3505

tat gag ata tcc  cgg tac tta gat acc  ctg tac tct gga gac  ccc     56022
Tyr Glu Ile Ser  Arg Tyr Leu Asp Thr  Leu Tyr Ser Gly Asp  Pro
            3510               3515                   3520
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tgc tat aac ggc  gct gtg cgt cta tgc  cgt tta ttg gga tca  tca      56067
Cys Tyr Asn Gly  Ala Val Arg Leu Cys  Arg Leu Leu Gly Ser  Ser
        3525                 3530                 3535

att ccc att gcc  ctg tac tac aat aca  ata tcg ggt aat gcc  ttt      56112
Ile Pro Ile Ala  Leu Tyr Tyr Asn Thr  Ile Ser Gly Asn Ala  Phe
        3540                 3545                 3550

gaa ccg tat ttt  gct ggg agg cgt tat  ata gca tat tta ggc  gct      56157
Glu Pro Tyr Phe  Ala Gly Arg Arg Tyr  Ile Ala Tyr Leu Gly  Ala
        3555                 3560                 3565

cta ttt ttt ggt  aga gtg cac caa aca  cca ttt ggg gac ggg  aaa      56202
Leu Phe Phe Gly  Arg Val His Gln Thr  Pro Phe Gly Asp Gly  Lys
        3570                 3575                 3580

aaa acc caa agg  tag tgtgtattat tcgcgaataa agtattgtag agaatacgtt   56257
Lys Thr Gln Arg
        3585
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tatagtgact ttttattata catgtttttt atgtcagagg tattttatta tattctcgaa   56317

ggcgggaatt ccacataac atccatccga taataccaaa ccccactacc gccagaaacg    56377

cccctcctaa agaggcccca aggtattgtc ccgacattcg tatggcttgt cgtcgttcga    56437

atcctagaag cgttaccaca gttccgtttg gaaacaacaa cacagcctta gagtcatccc    56497

cgtgcatgtc tggattgaag ggtggaattg tggagtttcc catagcggct agttgtcgtt    56557

ctgtatcttt gctgtcaata ataattatat ccataatcgc ccccgtggtt agatacctaa    56617

gaaaaacact tccgcaatac aaacattctt ttaaattgtc cggatggggc agtgcgaccg    56677

tctctatgac accatgttca gacacgcaag tatccctgct taaataaaca acggatatgg    56737

ggttatatac atccacatct gccagggaat ataccaaacc cctttgaggt ttgtttcgtg    56797

taatcacata actgtgtccc tggacagctg gaagaatgag cacatattct ccgttacgcg    56857

cggctgcatc ttgacacgta aatacttctg gtacatgggt gtggagtata tgcaaatctt    56917

tggcagtcca tgtggtaaaa atcatcatgg ttttaaatgc cgcgtcgaat atttcagatt    56977

cgtctagttg ggtatgcaat acctcgttaa gtcctgggcg tgttggtatt gccgacagga    57037

gattcataac atgaatctct ccgtgaggt ctgtacgaag ggaacccata caaggactgt     57097

atacgtttgg tattgtaaac atgtgttttg aaggatttaa gtatgccagg ccttcttgta    57157

tgttaagtgc tgcttgcgtg gcgtgagctg ccgtacacat ggatgtcatt aaaagcaaag    57217

ttgtgcgacc gtctaatacc cgagatgaat tttctagtcc ttcgcggaaa tttaataaaa    57277

tcattgaggc aaaaaataaa gcctgcctct ctgtagcatt taaattttgc ttcacaagca    57337

gcccttgta tatgctcatt ataacacgcc tggcgagaga aagtgcattc acatggtctt      57397

gaccacggga aagcgcgtat gcggtcttta gttgatcacg gcttcatca tatgaaataa      57457

aataatcgac atttgcgggt tttacctgac caaaaagaag tgaaagttcg tcatgaagct    57517
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gcgatggatc ggcaaagatc agatccgagg ttccggatat agtgttggga tgagctcctg 57577

ctcctatccg cattaaaatg taattaagga attttaattg atactgaaca tctacgatct 57637

catctaacag aaaatattct gtggtacggc ccatttccga caacgcaaaa attgatgtgg 57697

ctattcttgc ggcgatatgg taatagcttt cctcgtttat gtcatgttga tccgccttcg 57757

ttgtcatccg cagagcctcc gtgtgggcca tggataaatg atagcggtaa tccaaactct 57817

cttcgggata tgcgcatata tcgaccgtag catgctttga aaaattcata tccaacccac 57877

gtccaagtaa ataaactcga taagatggcc ccggatccgg acccggtgga tttagctgga 57937

accatgtggt gtcgcttgta accgcgttca gttttactgt atgtggtaca acaattaatt 57997

ctatcggtgg tccagaggat aaagaaatga gcgagctcat aaatcctaca ccaatattta 58057

cttccacacg acccgagtcg cttgtgagaa gcaccgaacc ggtggcccag tatcgaattg 58117

gccataccga cccaaaaagg ggaacgtgta ttctcaacgt tgagttggtg ataattgctt 58177

cggcagaaaa aaaagtatgt cgggcaaggg catcccatgt agcaaaatgc gctttatgtt 58237

ccagaatagt attcttgggg actgttgggc gagcgggtaa aagacttacc ccaaacggcc 58297

tttctgcagt tgctgcggtc tcagctcttt ccaaatgcca tacaagggggg tttggtggga 58357

acgtagtaaa cgcaacaaga tgttgcgtag ttaaatacgg cgcaaacgaa ctgtcaaaga 58417

agctcacgtc gggtgtcaca gggtgactaa gaaatccaaa acgtccagca ggaaacggtg 58477

ctcgatgttc tgctttgaaa tggtatggcg ataacaagta ttttggaaat ataaccagcc 58537

cgacgtctcc ttcgtgtgtt gtagggttaa ccttaacaat aaccaagaaa acgtgttttc 58597

tatcatttcc ccagtgaagt gatttaatga gttcttcatc gaaaccagta ggataaaagg 58657

cttctaattt cagagacata ttacggtcgg aatattctcg tagaagagca gacatatgtc 58717

cgatagagcg agtcgcaggg gttggtgtta cgtaagattt attagccgtg gtccaaagag 58777

gaagaattac caccgctaaa actagcgcaa acatagtcgc tgttacttgc gctacaatat 58837

caccgcaacg ttatgcacac agcgtgcctt tacccctcct cacccaccaa caggcttggc 58897

ggctttaat attaccactc cgttttaggg agataaaggc gggattaaag gatgtggtaa 58957

taaatgacgc atatataaaa aagaaaaaca cgtacacgcg agtatgacaa tgtgtatcat 59017

ctttttactg gtacatacgt aaatactagg tatatttagg aagtgttgtc ctgaacggca 59077

ttaacaagct cttttcaatat attccatgca ccggaggaca tgtttgccgg ggtcatctgg 59137

ggtagcagag tttttagttc ttgtgccgca tgctggggtg tctgttctaa cgataatacg 59197

aacggagaca tgcttcgtga gcagtttgaa agggtctcca ttccccatgc ccataacggc 59257

agaatatttc caaactctcc gcaaagctcc ggaagtttaa gcacggcgaa taacgtgtct 59317

tcaatcccag gtacttcgcg tagttttata cactcggatt tttgtaattt ctgtttaaat 59377

acatcattac aaaatgacag tgtgttccag cccgcgtgcc agttgttagt tttaagaaat 59437

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ataattgtat taataagcat tatatataca tttctcagaa ccataacaaa cggcagatta   59497

accgtttctc ccggtctggc ccgtttgctt actctggata aatgactggg gagtgaaacg   59557

gtacaaacta ccaagttggt cccggggggt tcagcgggaa gcgtaaacaa taacccagga   59617

agcgccgctg gggacatatc tcccactaag tatctggaca agggaaaaca tatagttgag   59677

gcgattgggt gtcggtcgga aacataatt ttatacggct ccttatttac ttgtacgaga   59737

tccgatgtac ttgtgtccat caatgccgag attttcgcat gcataattgc atgcggagaa   59797

cagaacaggc tctgaaaatg agccgtgagg cgttgtgcgt cttcaggcga aacgtctcca   59857

ttaagacggc gagtttgtgt tccgtaaatt ccgcaaatgg cgtcctcccc tgcaaggtta   59917

cgccaatacg acagggctc cccaatgagt aagatccggt ttggtgttat tgcaaagtgg   59977

tgtaaaaatt cttcggcggc ggttgttttt ccaattccat acgccccgtc caaataaata   60037

cgcaaaacgc ccatttttac atcggtttta tccgttgaca tgtttattgt agacaaacgc   60097
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gtcttaggtt atcttctggg acggaacttc aaat atg tcc gct agt cga   att          60149
                                        Met Ser Ala Ser Arg   Ile
                                                         3590

cgg gcc aag tgt  ttt cgt ttg gga caa  cgt tgc cac act cgt  ttt          60194
Arg Ala Lys Cys  Phe Arg Leu Gly Gln  Arg Cys His Thr Arg  Phe
            3595                3600               3605

tac gat gta ctc  aaa aag gat att gat  aac gta cgt cga ggt  ttc          60239
Tyr Asp Val Leu  Lys Lys Asp Ile Asp  Asn Val Arg Arg Gly  Phe
            3610                3615               3620

gcg gac gcg ttc  aac ccg agg ctg gca  aaa ctc ctg tcg ccg  tta          60284
Ala Asp Ala Phe  Asn Pro Arg Leu Ala  Lys Leu Leu Ser Pro  Leu
            3625                3630               3635

tcc cac gtg gat  gtt caa agg gct gta  cgc ata tca atg tcg  ttt          60329
Ser His Val Asp  Val Gln Arg Ala Val  Arg Ile Ser Met Ser  Phe
            3640                3645               3650

gaa gta aat ttg  gga cgc cga cgc ccc  gat tgt gtt tgt att  ata          60374
Glu Val Asn Leu  Gly Arg Arg Arg Pro  Asp Cys Val Cys Ile  Ile
            3655                3660               3665

caa acg gaa tcc  agt ggt gcc gga aag  acc gtt tgt ttt ata  gtg          60419
Gln Thr Glu Ser  Ser Gly Ala Gly Lys  Thr Val Cys Phe Ile  Val
            3670                3675               3680

gaa tta aaa tct  tgc cgt ttt agc gct  aat ata cat acc cct  act          60464
Glu Leu Lys Ser  Cys Arg Phe Ser Ala  Asn Ile His Thr Pro  Thr
            3685                3690               3695

aag tat cac cag  ttt tgc gag ggt atg  cgc cag ctg agg gat  acc          60509
Lys Tyr His Gln  Phe Cys Glu Gly Met  Arg Gln Leu Arg Asp  Thr
            3700                3705               3710

atg gct tta ata  aag gaa acc aca ccc  acg gga tct gat gaa  ata          60554
Met Ala Leu Ile  Lys Glu Thr Thr Pro  Thr Gly Ser Asp Glu  Ile
            3715                3720               3725
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atg gtg acc ccc  ctc ctt gtg ttt gta  tct caa cgg ggt ctg  aac     60599
Met Val Thr Pro  Leu Leu Val Phe Val  Ser Gln Arg Gly Leu  Asn
            3730              3735                 3740

ctg tta cag gta  act cgg tta ccc cca  aag gtg att cat gga  aac     60644
Leu Leu Gln Val  Thr Arg Leu Pro Pro  Lys Val Ile His Gly  Asn
            3745              3750                 3755

ctt gtt atg cta  gcg tcg cat ttg gag  aat gta gcg gaa tat  acc     60689
Leu Val Met Leu  Ala Ser His Leu Glu  Asn Val Ala Glu Tyr  Thr
            3760              3765                 3770

ccc ccg ata agg  tcc gtt aga gag cga  aga cgt cta tgc aaa  aag     60734
Pro Pro Ile Arg  Ser Val Arg Glu Arg  Arg Arg Leu Cys Lys  Lys
            3775              3780                 3785

aaa att cac gta  tgt tct ctt gcg aaa  aag cgt gcg aaa tca  tgc     60779
Lys Ile His Val  Cys Ser Leu Ala Lys  Lys Arg Ala Lys Ser  Cys
            3790              3795                 3800

cat cgt tcc gct  tta aca aag ttt gaa  gaa aat gca gct tgt  ggg     60824
His Arg Ser Ala  Leu Thr Lys Phe Glu  Glu Asn Ala Ala Cys  Gly
            3805              3810                 3815

gtg gat tta ccc  ctt aga agg cct tct  tta ggt gct tgt ggt  gga     60869
Val Asp Leu Pro  Leu Arg Arg Pro Ser  Leu Gly Ala Cys Gly  Gly
            3820              3825                 3830

att tta caa agt  ata acc ggg atg ttt  tcc cat ggg taa gaaaacagct  60918
Ile Leu Gln Ser  Ile Thr Gly Met Phe  Ser His Gly
            3835              3840

tttaaagcag taccggttta tattcacgcc agttgacttt gtttgctgca gacacc atg  60977
                                                                 Met

acg  gcg aga tat ggg ttc  gga tct atc tcg ttt  ccg aat aaa tgt    61022
Thr  Ala Arg Tyr Gly Phe  Gly Ser Ile Ser Phe  Pro Asn Lys Cys
3845              3850              3855

ggg  ata ttt ttg tct acc  act aag aac ttt ata  gcc ccc aac ttc    61067
Gly  Ile Phe Leu Ser Thr  Thr Lys Asn Phe Ile  Ala Pro Asn Phe
3860              3865              3870

ccc  ata cac tac tgg acg  gct ccc gcg ttt gag  tta aga ggg cgt    61112
Pro  Ile His Tyr Trp Thr  Ala Pro Ala Phe Glu  Leu Arg Gly Arg
3875              3880              3885

atg  aat ccc gat ttg gaa  aaa aat acg tta acg  tta aaa aat gcg    61157
Met  Asn Pro Asp Leu Glu  Lys Asn Thr Leu Thr  Leu Lys Asn Ala
3890              3895              3900

gcg  gcc gtt gcc gca tta  gac aac ctt cgc ggg  gaa acg att acg    61202
Ala  Ala Val Ala Ala Leu  Asp Asn Leu Arg Gly  Glu Thr Ile Thr
3905              3910              3915

tta  cca acg gaa ata gat  cgt cgt tta aag ccc  ctc gaa gaa caa    61247
Leu  Pro Thr Glu Ile Asp  Arg Arg Leu Lys Pro  Leu Glu Glu Gln
3920              3925              3930

cta  acg cgc atg gcc aag  gtt ttg gat tcc ctg  gag acg gct gct    61292
Leu  Thr Arg Met Ala Lys  Val Leu Asp Ser Leu  Glu Thr Ala Ala
3935              3940              3945
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gcc  gag  gcg  gaa  gaa  gca  gat  gca  caa  tct  gag  gaa  tgt  aca  cgt      61337
Ala  Glu  Ala  Glu  Glu  Ala  Asp  Ala  Gln  Ser  Glu  Glu  Cys  Thr  Arg
3950                3955                3960

aca  gaa  ata  ata  cgc  aat  gag  tct  ata  cac  ccc  gag  gta  cag  att      61382
Thr  Glu  Ile  Ile  Arg  Asn  Glu  Ser  Ile  His  Pro  Glu  Val  Gln  Ile
3965                3970                3975

gcc  aaa  aat  gat  gca  ccg  ttg  cag  tac  gat  aca  aac  ttt  caa  gtg      61427
Ala  Lys  Asn  Asp  Ala  Pro  Leu  Gln  Tyr  Asp  Thr  Asn  Phe  Gln  Val
3980                3985                3990

gat  ttt  atc  acc  ctg  gtg  tac  ttg  gga  agg  gca  agg  ggc  aat  aac      61472
Asp  Phe  Ile  Thr  Leu  Val  Tyr  Leu  Gly  Arg  Ala  Arg  Gly  Asn  Asn
3995                4000                4005

tct  cca  ggg  att  gtt  ttc  ggg  cca  tgg  tat  cgt  act  ctg  cag  gaa      61517
Ser  Pro  Gly  Ile  Val  Phe  Gly  Pro  Trp  Tyr  Arg  Thr  Leu  Gln  Glu
4010                4015                4020

cgg  ctt  gtg  tta  gat  agg  ccc  gta  gct  gca  cgc  gga  gtt  gat  tgt      61562
Arg  Leu  Val  Leu  Asp  Arg  Pro  Val  Ala  Ala  Arg  Gly  Val  Asp  Cys
4025                4030                4035

aaa  gac  ggg  cgc  att  tcc  cgt  acg  ttt  atg  aac  aca  acg  gta  aca      61607
Lys  Asp  Gly  Arg  Ile  Ser  Arg  Thr  Phe  Met  Asn  Thr  Thr  Val  Thr
4040                4045                4050

tgt  cta  cag  tcc  gcc  ggg  aga  atg  tat  gtt  gga  gat  aga  gcg  tac      61652
Cys  Leu  Gln  Ser  Ala  Gly  Arg  Met  Tyr  Val  Gly  Asp  Arg  Ala  Tyr
4055                4060                4065

tcc  gcg  ttc  gag  tgt  gcg  gta  tta  tgt  tta  tat  tta  atg  tat  agg      61697
Ser  Ala  Phe  Glu  Cys  Ala  Val  Leu  Cys  Leu  Tyr  Leu  Met  Tyr  Arg
4070                4075                4080

aca  tct  aat  agt  gtc  cac  gaa  cct  caa  gtt  tcg  tcc  ttc  ggg  aac      61742
Thr  Ser  Asn  Ser  Val  His  Glu  Pro  Gln  Val  Ser  Ser  Phe  Gly  Asn
4085                4090                4095

ctt  ata  gag  cac  cta  ccg  gaa  tat  act  gag  aca  ttt  gtg  aat  tat      61787
Leu  Ile  Glu  His  Leu  Pro  Glu  Tyr  Thr  Glu  Thr  Phe  Val  Asn  Tyr
4100                4105                4110

atg  aca  aca  cac  gaa  aat  aaa  aac  agt  tat  caa  ttt  tgc  tat  gat      61832
Met  Thr  Thr  His  Glu  Asn  Lys  Asn  Ser  Tyr  Gln  Phe  Cys  Tyr  Asp
4115                4120                4125

cgt  cta  cca  cgc  gac  cag  ttt  cat  gct  cgt  ggg  ggg  cgg  tat  gat      61877
Arg  Leu  Pro  Arg  Asp  Gln  Phe  His  Ala  Arg  Gly  Gly  Arg  Tyr  Asp
4130                4135                4140

caa  ggc  gcc  tta  acg  tca  cat  tct  gtt  atg  gat  gcg  ctt  ata  cgg      61922
Gln  Gly  Ala  Leu  Thr  Ser  His  Ser  Val  Met  Asp  Ala  Leu  Ile  Arg
4145                4150                4155

ttg  cag  gtc  cta  ccg  cct  gca  cct  gga  cag  ttt  aat  cct  ggg  gtt      61967
Leu  Gln  Val  Leu  Pro  Pro  Ala  Pro  Gly  Gln  Phe  Asn  Pro  Gly  Val
4160                4165                4170

aat  gac  att  att  gat  cgc  aat  cat  acc  gca  tat  gtg  gac  aag  att      62012
Asn  Asp  Ile  Ile  Asp  Arg  Asn  His  Thr  Ala  Tyr  Val  Asp  Lys  Ile
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4175                    4180                    4185
caa cag gcg gcc gcg gcg  tat tta gaa cgg gcc  caa aac gtg ttt    62057
Gln Gln Ala Ala Ala Ala  Tyr Leu Glu Arg Ala  Gln Asn Val Phe
4190                4195                   4200

ctt atg gaa gac caa act  cta tta agg tta aca  att gac acg att    62102
Leu Met Glu Asp Gln Thr  Leu Leu Arg Leu Thr  Ile Asp Thr Ile
4205                4210                   4215

acg gcg tta tta tta tta  agg cgc tta tta tgg  aac ggg aac gta    62147
Thr Ala Leu Leu Leu Leu  Arg Arg Leu Leu Trp  Asn Gly Asn Val
4220                4225                   4230

tac gga gat aaa cta aaa  aat aat ttt caa ctg  ggt ttg att gtg    62192
Tyr Gly Asp Lys Leu Lys  Asn Asn Phe Gln Leu  Gly Leu Ile Val
4235                4240                   4245

tca gaa gca aca gga acc  cct acc aac aat gta  atc ttg cgc gga    62237
Ser Glu Ala Thr Gly Thr  Pro Thr Asn Asn Val  Ile Leu Arg Gly
4250                4255                   4260

gcg acg ggg ttt gat ggg  aag ttt aaa agc ggt  aat aat aac ttt    62282
Ala Thr Gly Phe Asp Gly  Lys Phe Lys Ser Gly  Asn Asn Asn Phe
4265                4270                   4275

caa ttt tta tgt gaa cga  tat ata gca cca ctg  tat acg tta aat    62327
Gln Phe Leu Cys Glu Arg  Tyr Ile Ala Pro Leu  Tyr Thr Leu Asn
4280                4285                   4290

cgg acc aca gag ctg act  gaa atg ttt cct gga  tta gtt gct ctt    62372
Arg Thr Thr Glu Leu Thr  Glu Met Phe Pro Gly  Leu Val Ala Leu
4295                4300                   4305

tgt tta gac gcg cat acc  cag ctt agt cgt gga  agt tta gga aga    62417
Cys Leu Asp Ala His Thr  Gln Leu Ser Arg Gly  Ser Leu Gly Arg
4310                4315                   4320

acc gta ata gat att tct  tct gga cag tac caa  gat cgg ctc ata    62462
Thr Val Ile Asp Ile Ser  Ser Gly Gln Tyr Gln  Asp Arg Leu Ile
4325                4330                   4335

agc tta att gca ttg gaa  tta gaa cac cgc cga  caa aat gtt aca    62507
Ser Leu Ile Ala Leu Glu  Leu Glu His Arg Arg  Gln Asn Val Thr
4340                4345                   4350

tcc cta ccc ata gcc gcc  gtg gta tca ata cat  gac agt gtt atg    62552
Ser Leu Pro Ile Ala Ala  Val Val Ser Ile His  Asp Ser Val Met
4355                4360                   4365

ttg caa tat gaa cgg gga  ctt gga atg tta atg  cac caa ccg cgt    62597
Leu Gln Tyr Glu Arg Gly  Leu Gly Met Leu Met  His Gln Pro Arg
4370                4375                   4380

gta agg gcg gca ttg gaa  gaa agt cgc cgc ctt  gcg cag ttc aac    62642
Val Arg Ala Ala Leu Glu  Glu Ser Arg Arg Leu  Ala Gln Phe Asn
4385                4390                   4395

gtt aac agt gac tat gat  ctt cta tat ttt gtc  tgt ttg ggt gtc    62687
Val Asn Ser Asp Tyr Asp  Leu Leu Tyr Phe Val  Cys Leu Gly Val
4400                4405                   4410

att cct cag ttt gcc tcc  aca ccg tga gtattcacta tccggtccgt       62734
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Ile Pro Gln Phe Ala Ser Thr Pro
4415   4420

gggtgttta ta atg gct gct gaa gct gac gaa gag aac tgt gaa gcg   62782
          Met Ala Ala Glu Ala Asp Glu Glu Asn Cys Glu Ala
          4425   4430

tta tac gtg gct ggg tat tta gcc tta tat tca aag gac gaa ggg   62827
Leu Tyr Val Ala Gly Tyr Leu Ala Leu Tyr Ser Lys Asp Glu Gly
4435   4440   4445

gaa tta aat att acc cca gag att gtg cgg tcc gct ttg ccg cct   62872
Glu Leu Asn Ile Thr Pro Glu Ile Val Arg Ser Ala Leu Pro Pro
4450   4455   4460

act agt aaa ata cca ata aac atc gat cat cga aaa gac tgt gtc   62917
Thr Ser Lys Ile Pro Ile Asn Ile Asp His Arg Lys Asp Cys Val
4465   4470   4475

gtg ggt gaa gta atc gca atc att gag gac ata cgc gga cct ttt   62962
Val Gly Glu Val Ile Ala Ile Ile Glu Asp Ile Arg Gly Pro Phe
4480   4485   4490

ttt ttg ggt atc gtt aga tgc cct caa cta cat gcg gtg ctg ttt   63007
Phe Leu Gly Ile Val Arg Cys Pro Gln Leu His Ala Val Leu Phe
4495   4500   4505

gaa gcg gcc cat tcg aat ttt ttt gga aat aga gat tct gta tta   63052
Glu Ala Ala His Ser Asn Phe Phe Gly Asn Arg Asp Ser Val Leu
4510   4515   4520

tct ccg cta gaa cgt gcg tta tac ttg gtc aca aat tac tta ccc   63097
Ser Pro Leu Glu Arg Ala Leu Tyr Leu Val Thr Asn Tyr Leu Pro
4525   4530   4535

tcc gta tcc ctg tct tca aaa cga ttg tcc ccg aat gag ata cca   63142
Ser Val Ser Leu Ser Ser Lys Arg Leu Ser Pro Asn Glu Ile Pro
4540   4545   4550

gac ggt aat ttt ttt acc cat gtt gcg tta tgt gtt gtt gga aga   63187
Asp Gly Asn Phe Phe Thr His Val Ala Leu Cys Val Val Gly Arg
4555   4560   4565

cgc gtt gga aca gtg gtc aat tat gac tgt acc ccg gaa tct tca   63232
Arg Val Gly Thr Val Val Asn Tyr Asp Cys Thr Pro Glu Ser Ser
4570   4575   4580

att gaa cca ttc cgg gtt tta tcg atg gaa agt aaa gcg cgg tta   63277
Ile Glu Pro Phe Arg Val Leu Ser Met Glu Ser Lys Ala Arg Leu
4585   4590   4595

ttg tcg ctg gtt aaa gac tac gcg ggt tta aat aaa gta tgg aag   63322
Leu Ser Leu Val Lys Asp Tyr Ala Gly Leu Asn Lys Val Trp Lys
4600   4605   4610

gtt agc gaa gat aaa ctc gcc aag gtg tta tta tcc aca gcc gtg   63367
Val Ser Glu Asp Lys Leu Ala Lys Val Leu Leu Ser Thr Ala Val
4615   4620   4625

aac aat atg ctt tta aga gat aga tgg gac gtg gtt gca aaa cgt   63412
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gggcgtgggg ttgtgttact cagtaacact ggcttttac aagattatca atcgttaaca   74244
```

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taaa atg gcg atc  aga acg ggg ttt tgt  aat ccc ttt tta acc  caa       74290
     Met Ala Ile  Arg Thr Gly Phe Cys  Asn Pro Phe Leu Thr  Gln
          5030                5035               5040

gca tca ggg att  aaa tat aac cca aga  acc ggg cgc ggt agt  aac        74335
Ala Ser Gly Ile  Lys Tyr Asn Pro Arg  Thr Gly Arg Gly Ser  Asn
          5045                5050               5055

aga gaa ttt ctt  cat agt tac aaa act  acc atg tca tcg ttt  caa        74380
Arg Glu Phe Leu  His Ser Tyr Lys Thr  Thr Met Ser Ser Phe  Gln
          5060                5065               5070

ttt ttg gcc cct  aaa tgt tta gat gaa  gat gtg ccc atg gaa  gaa        74425
Phe Leu Ala Pro  Lys Cys Leu Asp Glu  Asp Val Pro Met Glu  Glu
          5075                5080               5085
```

```
cga aag ggg gtt  cac gtc ggt aca ctt  agt cga ccg cct aaa  gtt          74470
Arg Lys Gly Val  His Val Gly Thr Leu  Ser Arg Pro Pro Lys  Val
            5090              5095              5100

tac tgt aat gga  aaa gaa gtt ccg att  ctg gat ttt cgt tgt  tcc          74515
Tyr Cys Asn Gly  Lys Glu Val Pro Ile  Leu Asp Phe Arg Cys  Ser
            5105              5110              5115

agc ccc tgg cct  aga cgc gtg aat att  tgg ggg gaa atc gac  ttt          74560
Ser Pro Trp Pro  Arg Arg Val Asn Ile  Trp Gly Glu Ile Asp  Phe
            5120              5125              5130

cgt ggg gat aag  ttt gac ccc cgc ttt  aac aca ttc cat gta  tat          74605
Arg Gly Asp Lys  Phe Asp Pro Arg Phe  Asn Thr Phe His Val  Tyr
            5135              5140              5145

gat att gtc gaa  aca aca gaa gcc gcg  tct aat gga gat gta  tcc          74650
Asp Ile Val Glu  Thr Thr Glu Ala Ala  Ser Asn Gly Asp Val  Ser
            5150              5155              5160

cgg ttt gca act  gca aca cga ccg ctt  ggt acc gtt att act  tta          74695
Arg Phe Ala Thr  Ala Thr Arg Pro Leu  Gly Thr Val Ile Thr  Leu
            5165              5170              5175

ctt ggc atg tcc  cga tgt gga aaa agg  gtg gca gtt cat gta  tac          74740
Leu Gly Met Ser  Arg Cys Gly Lys Arg  Val Ala Val His Val  Tyr
            5180              5185              5190

ggc atc tgt caa  tat ttt tat ata aac  aaa gcc gag gtg gat  acc          74785
Gly Ile Cys Gln  Tyr Phe Tyr Ile Asn  Lys Ala Glu Val Asp  Thr
            5195              5200              5205

gct tgt ggc ata  cgt tcc ggt agc gag  tta tct gta tta ctt  gcc          74830
Ala Cys Gly Ile  Arg Ser Gly Ser Glu  Leu Ser Val Leu Leu  Ala
            5210              5215              5220

gag tgt tta cgc  agt tct atg ata aca  caa aat gat gca acg  tta          74875
Glu Cys Leu Arg  Ser Ser Met Ile Thr  Gln Asn Asp Ala Thr  Leu
            5225              5230              5235

aat gga gac aag  aac gct ttt cat ggt  acc tcg ttt aaa agc  gca          74920
Asn Gly Asp Lys  Asn Ala Phe His Gly  Thr Ser Phe Lys Ser  Ala
            5240              5245              5250

tct cca gaa agc  ttt cgc gtt gag gtt  att gag cgc aca gat  gtt          74965
Ser Pro Glu Ser  Phe Arg Val Glu Val  Ile Glu Arg Thr Asp  Val
            5255              5260              5265

tat tac tac gat  aca cag cca tgt gcg  ttt tac agg gtg tat  tct          75010
Tyr Tyr Tyr Asp  Thr Gln Pro Cys Ala  Phe Tyr Arg Val Tyr  Ser
            5270              5275              5280

ccc tca tct aaa  ttt aca aat tat ctt  tgt gat aac ttt cac  ccg          75055
Pro Ser Ser Lys  Phe Thr Asn Tyr Leu  Cys Asp Asn Phe His  Pro
            5285              5290              5295

gag ttg aaa aag  tat gaa ggt cgg gta  gac gct acc act cgt  ttt          75100
Glu Leu Lys Lys  Tyr Glu Gly Arg Val  Asp Ala Thr Thr Arg  Phe
            5300              5305              5310

cta atg gat aat  ccc ggc ttt gtt agt  ttt ggt tgg tat caa  cta          75145
Leu Met Asp Asn  Pro Gly Phe Val Ser  Phe Gly Trp Tyr Gln  Leu
```

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                                   5315                    5320                      5325

aaa cct gga gtt  gat ggg gaa cgt gtt  cga gtt cga ccg gca  agt      75190
Lys Pro Gly Val  Asp Gly Glu Arg Val  Arg Val Arg Pro Ala  Ser
                 5330             5335                 5340

cgc caa tta acg  tta agc gac gtt gaa  att gac tgc atg tcg  gat      75235
Arg Gln Leu Thr  Leu Ser Asp Val Glu  Ile Asp Cys Met Ser  Asp
                 5345             5350                 5355

aat ctg cag gct  ata cca aac gat gac  tca tgg cct gac tac  aag      75280
Asn Leu Gln Ala  Ile Pro Asn Asp Asp  Ser Trp Pro Asp Tyr  Lys
                 5360             5365                 5370

ttg tta tgt ttc  gat att gaa tgt aaa  tca gga gga tct aat  gag      75325
Leu Leu Cys Phe  Asp Ile Glu Cys Lys  Ser Gly Gly Ser Asn  Glu
                 5375             5380                 5385

ctg gcg ttt ccc  gat gca aca cat ctg  gag gat ctt gta atc  caa      75370
Leu Ala Phe Pro  Asp Ala Thr His Leu  Glu Asp Leu Val Ile  Gln
                 5390             5395                 5400

att tct tgt cta  tta tat tca atc cct  cga cag tct tta gaa  cac      75415
Ile Ser Cys Leu  Leu Tyr Ser Ile Pro  Arg Gln Ser Leu Glu  His
                 5405             5410                 5415

att tta ctg ttt  tcc ctt ggc tct tgt  gac tta cca caa agg  tat      75460
Ile Leu Leu Phe  Ser Leu Gly Ser Cys  Asp Leu Pro Gln Arg  Tyr
                 5420             5425                 5430

gta caa gaa atg  aag gac gcg ggg tta  ccg gag ccg act gtg  ctg      75505
Val Gln Glu Met  Lys Asp Ala Gly Leu  Pro Glu Pro Thr Val  Leu
                 5435             5440                 5445

gag ttt gat agt  gaa ttc gag cta tta  att gca ttt atg acc  ctc      75550
Glu Phe Asp Ser  Glu Phe Glu Leu Leu  Ile Ala Phe Met Thr  Leu
                 5450             5455                 5460

gta aaa cag tac  gct ccc gag ttt gcc  aca ggt tat aac att  gtt      75595
Val Lys Gln Tyr  Ala Pro Glu Phe Ala  Thr Gly Tyr Asn Ile  Val
                 5465             5470                 5475

aat ttt gat tgg  gcg ttt att atg gag  aaa ctt aat tct ata  tac      75640
Asn Phe Asp Trp  Ala Phe Ile Met Glu  Lys Leu Asn Ser Ile  Tyr
                 5480             5485                 5490

agt ctc aag ctt  gat ggt tat ggc agt  ata aac cgt ggg ggt  ctg      75685
Ser Leu Lys Leu  Asp Gly Tyr Gly Ser  Ile Asn Arg Gly Gly  Leu
                 5495             5500                 5505

ttt aag ata tgg  gat gtt ggc aaa tcc  gga ttt cag cga cga  agc      75730
Phe Lys Ile Trp  Asp Val Gly Lys Ser  Gly Phe Gln Arg Arg  Ser
                 5510             5515                 5520

aag gta aag atc  aac ggt ctc ata tct  ctg gat atg tat gca  att      75775
Lys Val Lys Ile  Asn Gly Leu Ile Ser  Leu Asp Met Tyr Ala  Ile
                 5525             5530                 5535

gca act gaa aaa  tta aaa ctc tcg agt  tat aaa tta gat tcg  gtt      75820
Ala Thr Glu Lys  Leu Lys Leu Ser Ser  Tyr Lys Leu Asp Ser  Val
                 5540             5545                 5550

gca cgt gaa gct  cta aat gag tcc aag  aga gat ttg ccc tac  aaa      75865
```

```
Ala Arg Glu Ala  Leu Asn Glu Ser Lys  Arg Asp Leu Pro  Tyr  Lys
            5555              5560                5565
```

```
gac att ccg gga  tat tac gct agt gga  ccg aat aca cga  gga  att     75910
Asp Ile Pro Gly  Tyr Tyr Ala Ser Gly  Pro Asn Thr Arg  Gly  Ile
            5570              5575                5580
```

```
att ggt gaa tat  tgt ata caa gac tcg  gct ctt gtg ggg  aaa  ctg     75955
Ile Gly Glu Tyr  Cys Ile Gln Asp Ser  Ala Leu Val Gly  Lys  Leu
            5585              5590                5595
```

```
ttt ttt aaa tat  tta cca cac ctt gag  tta tcc gcg gtt  gca  agg     76000
Phe Phe Lys Tyr  Leu Pro His Leu Glu  Leu Ser Ala Val  Ala  Arg
            5600              5605                5610
```

```
cta gct aga att  act tta acc aag gct  att tac gac gga  cag  cag     76045
Leu Ala Arg Ile  Thr Leu Thr Lys Ala  Ile Tyr Asp Gly  Gln  Gln
            5615              5620                5625
```

```
gtt agg att tac  acc tgt tta tta gga  ctg gct tcg tct  cga  gga     76090
Val Arg Ile Tyr  Thr Cys Leu Leu Gly  Leu Ala Ser Ser  Arg  Gly
            5630              5635                5640
```

```
ttt att tta ccc  gat ggg gga tac cca  gct act ttt gaa  tat  aag     76135
Phe Ile Leu Pro  Asp Gly Gly Tyr Pro  Ala Thr Phe Glu  Tyr  Lys
            5645              5650                5655
```

```
gat gtt att ccc  gat gtc ggg gat gtt  gag gaa gag atg  gat  gaa     76180
Asp Val Ile Pro  Asp Val Gly Asp Val  Glu Glu Glu Met  Asp  Glu
            5660              5665                5670
```

```
gac gag agc gtt  tct ccc act ggt acg  tca agt ggg cga  aat  gta     76225
Asp Glu Ser Val  Ser Pro Thr Gly Thr  Ser Ser Gly Arg  Asn  Val
            5675              5680                5685
```

```
gga tat aaa gga  gcc agg gtt ttt gac  cct gat acg gga  ttt  tat     76270
Gly Tyr Lys Gly  Ala Arg Val Phe Asp  Pro Asp Thr Gly  Phe  Tyr
            5690              5695                5700
```

```
atc gat ccg gtg  gtc gta ttg gat ttt  gca agt tta tat  cca  agt     76315
Ile Asp Pro Val  Val Val Leu Asp Phe  Ala Ser Leu Tyr  Pro  Ser
            5705              5710                5715
```

```
ata att cag gcc  cat aac tta tgt ttt  acc acg cta acg  tta  aat     76360
Ile Ile Gln Ala  His Asn Leu Cys Phe  Thr Thr Leu Thr  Leu  Asn
            5720              5725                5730
```

```
ttt gag acg gtt  aaa cgt ttg aat cca  tcc gat tat gcc  acc  ttt     76405
Phe Glu Thr Val  Lys Arg Leu Asn Pro  Ser Asp Tyr Ala  Thr  Phe
            5735              5740                5745
```

```
aca gtt gga gga  aaa cgt ctt ttt ttt  gtg cgc tct aac  gtt  cga     76450
Thr Val Gly Gly  Lys Arg Leu Phe Phe  Val Arg Ser Asn  Val  Arg
            5750              5755                5760
```

```
gaa agt ctg ctg  ggt gtt ctt tta aaa  gac tgg ttg gct  atg  cgc     76495
Glu Ser Leu Leu  Gly Val Leu Leu Lys  Asp Trp Leu Ala  Met  Arg
            5765              5770                5775
```

```
aag gct att aga  gcg cgc ata ccc gga  agt tct tca gat  gaa  gca     76540
Lys Ala Ile Arg  Ala Arg Ile Pro Gly  Ser Ser Ser Asp  Glu  Ala
            5780              5785                5790
```

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```
gtg tta tta gac  aaa caa caa gcc gcg  ata aaa gta gtt tgt  aat        76585
Val Leu Leu Asp  Lys Gln Gln Ala Ala  Ile Lys Val Val Cys  Asn
            5795               5800              5805

tcc gtg tac ggt  ttt act gga gtt gcg  cag gga ttt ctg cca  tgt        76630
Ser Val Tyr Gly  Phe Thr Gly Val Ala  Gln Gly Phe Leu Pro  Cys
            5810               5815              5820

tta tac gta gcg  gcc act gtc act aca  att ggc cgt caa atg  tta        76675
Leu Tyr Val Ala  Ala Thr Val Thr Thr  Ile Gly Arg Gln Met  Leu
            5825               5830              5835

tta agt acc aga  gat tat att cat aat  aac tgg gcc gca ttt  gaa        76720
Leu Ser Thr Arg  Asp Tyr Ile His Asn  Asn Trp Ala Ala Phe  Glu
            5840               5845              5850

cgt ttt att aca  gcg ttt cca gac att  gaa agt agc gtt ctc  tcc        76765
Arg Phe Ile Thr  Ala Phe Pro Asp Ile  Glu Ser Ser Val Leu  Ser
            5855               5860              5865

caa aaa gcg tac  gag gta aag gtt ata  tat gga gat acg gat  tct        76810
Gln Lys Ala Tyr  Glu Val Lys Val Ile  Tyr Gly Asp Thr Asp  Ser
            5870               5875              5880

gtg ttt atc cga  ttc aag ggt gtt agt  gtt gag ggg ata gct  aaa        76855
Val Phe Ile Arg  Phe Lys Gly Val Ser  Val Glu Gly Ile Ala  Lys
            5885               5890              5895

atc ggc gag aaa  atg gca cat ata att  tca acg gct ctg ttt  tgt        76900
Ile Gly Glu Lys  Met Ala His Ile Ile  Ser Thr Ala Leu Phe  Cys
            5900               5905              5910

cct cct ata aag  ttg gag tgt gaa aaa  act ttt ata aaa ctt  ttg        76945
Pro Pro Ile Lys  Leu Glu Cys Glu Lys  Thr Phe Ile Lys Leu  Leu
            5915               5920              5925

ctt ata aca aag  aaa aag tac att ggg  gta att tac ggc gga  aag        76990
Leu Ile Thr Lys  Lys Lys Tyr Ile Gly  Val Ile Tyr Gly Gly  Lys
            5930               5935              5940

gtt tta atg aag  gga gtc gac ttg gtt  aga aaa aac aac tgt  caa        77035
Val Leu Met Lys  Gly Val Asp Leu Val  Arg Lys Asn Asn Cys  Gln
            5945               5950              5955

ttt att aac gat  tat gcc cgc aaa ctt  gta gaa ctg ttg tta  tat        77080
Phe Ile Asn Asp  Tyr Ala Arg Lys Leu  Val Glu Leu Leu Leu  Tyr
            5960               5965              5970

gac gac acc gtc  tcg cgt gct gcg gcg  gag gcg tcg tgt gtt  tcc        77125
Asp Asp Thr Val  Ser Arg Ala Ala Ala  Glu Ala Ser Cys Val  Ser
            5975               5980              5985

att gct gaa tgg  aat aga cgg gcc atg  ccg tct ggg atg gcc  ggg        77170
Ile Ala Glu Trp  Asn Arg Arg Ala Met  Pro Ser Gly Met Ala  Gly
            5990               5995              6000

ttt gga cgc ata  att gca gat gca cat  cgc cag att aca tca  ccc        77215
Phe Gly Arg Ile  Ile Ala Asp Ala His  Arg Gln Ile Thr Ser  Pro
            6005               6010              6015

aaa ttg gat att  aat aag ttt gtt atg  acg gcc gag ctt agt  cgt        77260
Lys Leu Asp Ile  Asn Lys Phe Val Met  Thr Ala Glu Leu Ser  Arg
            6020               6025              6030
```

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```
cca cca tcc gcc  tac ata aac cgt cgc  ttg gct cac tta aca  gta      77305
Pro Pro Ser Ala  Tyr Ile Asn Arg Arg  Leu Ala His Leu Thr  Val
            6035                 6040                 6045

tat tat aaa tta  gta atg aga cag ggt  caa atc cca aac gtt  cga      77350
Tyr Tyr Lys Leu  Val Met Arg Gln Gly  Gln Ile Pro Asn Val  Arg
            6050                 6055                 6060

gaa cgc atc cct  tat gtt att gtg gcc  ccc aca gac gaa gtg  gag      77395
Glu Arg Ile Pro  Tyr Val Ile Val Ala  Pro Thr Asp Glu Val  Glu
            6065                 6070                 6075

gct gat gca aaa  agt gta gct ttg cta  cgt gga gat cct tta  cag      77440
Ala Asp Ala Lys  Ser Val Ala Leu Leu  Arg Gly Asp Pro Leu  Gln
            6080                 6085                 6090

aat acc gca ggt  aaa cgg tgt ggg gaa  gca aag cgt aag tta  ata      77485
Asn Thr Ala Gly  Lys Arg Cys Gly Glu  Ala Lys Arg Lys Leu  Ile
            6095                 6100                 6105

ata tct gac tta  gcg gaa gat ccc att  cac gta aca tca cac  ggg      77530
Ile Ser Asp Leu  Ala Glu Asp Pro Ile  His Val Thr Ser His  Gly
            6110                 6115                 6120

ctg tct tta aac  att gac tat tat ttt  tct cat ctc att ggg  acg      77575
Leu Ser Leu Asn  Ile Asp Tyr Tyr Phe  Ser His Leu Ile Gly  Thr
            6125                 6130                 6135

gcg agt gta act  ttt aag gcg tta ttt  gga aac gac act aaa  ctc      77620
Ala Ser Val Thr  Phe Lys Ala Leu Phe  Gly Asn Asp Thr Lys  Leu
            6140                 6145                 6150

aca gaa cgg ctt  tta aaa cgt ttt att  cca gag aca cga gtt  gtt      77665
Thr Glu Arg Leu  Leu Lys Arg Phe Ile  Pro Glu Thr Arg Val  Val
            6155                 6160                 6165

aac gtt aaa atg  cta aac cgc ttg cag  gcg gca ggc ttt gtt  tgt      77710
Asn Val Lys Met  Leu Asn Arg Leu Gln  Ala Ala Gly Phe Val  Cys
            6170                 6175                 6180

ata cac gcc ccg  tgc tgg gat aat aaa  atg aac act gaa gct  gaa      77755
Ile His Ala Pro  Cys Trp Asp Asn Lys  Met Asn Thr Glu Ala  Glu
            6185                 6190                 6195

atc acc gag gag  gaa caa agt cat caa  ata atg cgt aga gtc  ttt      77800
Ile Thr Glu Glu  Glu Gln Ser His Gln  Ile Met Arg Arg Val  Phe
            6200                 6205                 6210

tgt att cca aaa  gca att ctc cat caa  agt taa ggtcacacat          77843
Cys Ile Pro Lys  Ala Ile Leu His Gln  Ser
            6215                 6220
```

```
tttacagtaa acgtccgatg ttccaatgga tggcaccaca gtctctgttt gttgttctgg   77903

gttgcgacat accgacagta aaaatgttgt ctgccaaacg tgtgcgacta ttttataccc   77963

ccgacacgcg gcctgtatat gatcgattag tctgtaatgg aggtgaacag atttccccgg   78023

aaatataaca tacatcataa accctccggc atctccatca cgataaaaaa gtacgcgtat   78083

atctcgcatg cccccctccc tcataatatg atacataaaa aataattccg gttgtgccaa   78143
```

```
tacgctcgac aatagggggtt cagcggacgc tgcttgcatg ttggctcggt ctgatagcgc   78203

caaaatggat gcaagaaaca cacgatattc gtatatgttg ttaagctgct gaacatatgc   78263

tagtatcaga gccgcccgat cggttcgaca tagacgcggt tctccagatg cagtgcatgt   78323

cggacaataa cctccgagac ctaaatgata acccattccg gataacgaca ggcagttatc   78383

cgccactgtc tgacccaagt taaacggaag ggtgacaggg gtcgtcttaa taattggcac   78443

gattaagcct ctaacggtag ctagttcttc tggggggggac cttgcgatgt aattaaaata   78503

atggcggtac acagaccgct cctttgacat aagttttcct cgaatggttt gacggcggca   78563

tggcgttctg gagcgtacac gcatcgaagg cccgctccga gatacggatt tatatcgcct   78623

agacatactt cgataggggtg tgttcgaggg agaccagcga tattgcatgt cgtcgaagca   78683

taagtcctcc atctcgtatg aatgcggcat tggcggttgg tttgcgtgga aaaatctggt   78743

aggctttaaa tgcatacgcc aatgtccaca ggccagcaca tacacgacct tcaaatctgt   78803

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ataaatgttt atatacggcc tcggaacctg ctgcttttac aatggttatg aatcgaccct   78983

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gttcgataca gtcaaataaa cttgtgttat ttgctgagta tgctaatata tcccttttaa   79103

actgccgcaa agcgatccaa tagtgcccta tggttaataa acaacataac atgcattcgg   79163

tattcgtgcg accacggcac tttgcgtttt ttaaggtagt taacaaaata ggcccaaatg   79223

ctacttcggg acaggcatcc tcgctcgtaa atttggaaaa ttgttttgga acgtccctgg   79283

agttttcaat ccggttcgcc tgccagtatg atttaacaca tccaacgcga gtttctatag   79343

cacaatttgt acgctcgtct acattccaag tagcaacccc actcagtaat aataaagcca   79403

agtctgcgta accccaagct gcttctacgt aagacgattt tttaagtttg tctattaata   79463

tatcttcaaa ctctatatcc tcttttaatg cacgttccgc gcaggtaatc atcccacttg   79523

tgcgatgttc cgatgatgaa cagtcaacca tccgcgcgca atctttccaa ttagccaagg   79583

cggccgctaa aggttgaggg cctccagtca gtccgtcctg attaaagtaa aatgacttac   79643

gcgtttcggt ttcgtctaaa cgagacgtgc tgatcgatag taatgcagcc ctaactaccg   79703

cctgtacaaa aaaggagtaa ttggaatatc ttactttgtt ggccatttcc ttaccggggg   79763

gcggtcgtat acctggtaac cctccatcgg tacgaaaaca tacatgcaaa aaaaaatgtc   79823

tttgtatatc taacagggaa agcgtgcgcc tggcaaagga cccaaccaaa gtaacgttat   79883

aacggcacag gtagtaacga tccataagat acacaaattc aaaggcagcg ctaaaagtga   79943

caactgcaca gggcggggat gccagacttt tcatacataa catggcgtag tccgcaaccc   80003

attccggtgt cagtccaaat ttacgtttat acaaatcaag cgttctgcag accaaacagg   80063
```

```
ctctgtctaa cgccaaaacg tctccaattt cttctataaa ttcagtggta cttgaggtca    80123

tttcattatc cacacctacc gccgaagagg cctcataagt gacgttgttt tctattgcac    80183

ggggaacatt tattaagtgg gaggcaaata acaattctga aaataacaaa tcgttttta    80243

gcagaagggc tggattataa gcg atg tac gaa tcg  gaa aat gcg tcg gaa    80293
                          Met Tyr Glu Ser  Glu Asn Ala Ser Glu
                                       6225               6230

cac cat ccg gaa tta  gaa gat gta ttt tcg  gag aat acg ggc gat    80338
His His Pro Glu Leu  Glu Asp Val Phe Ser  Glu Asn Thr Gly Asp
            6235               6240               6245

tcg aat cca tcc atg  ggt tct tct gat tct  acc cga tcc atc tct    80383
Ser Asn Pro Ser Met  Gly Ser Ser Asp Ser  Thr Arg Ser Ile Ser
            6250               6255               6260

ggg atg agg gcc cgc  gat tta att aca gac  acc gat gtt aat cta    80428
Gly Met Arg Ala Arg  Asp Leu Ile Thr Asp  Thr Asp Val Asn Leu
            6265               6270               6275

tta aat atc gat gca  ctg gag tca aag tat  ttt cct gct gat agc    80473
Leu Asn Ile Asp Ala  Leu Glu Ser Lys Tyr  Phe Pro Ala Asp Ser
            6280               6285               6290

acc ttt act ctt tcc  gtt tgg ttt gaa aat  tta att ccc ccg gaa    80518
Thr Phe Thr Leu Ser  Val Trp Phe Glu Asn  Leu Ile Pro Pro Glu
            6295               6300               6305

ata gaa gca att cta  cct aca act gac gct  caa tta aat tat ata    80563
Ile Glu Ala Ile Leu  Pro Thr Thr Asp Ala  Gln Leu Asn Tyr Ile
            6310               6315               6320

tca ttt acc agt cgc  ctg gcg tcc gtt tta  aaa cat aaa gaa agt    80608
Ser Phe Thr Ser Arg  Leu Ala Ser Val Leu  Lys His Lys Glu Ser
            6325               6330               6335

aac gat tca gaa aaa  tct gct tat gtt gtt  cca tgt gaa cat agt    80653
Asn Asp Ser Glu Lys  Ser Ala Tyr Val Val  Pro Cys Glu His Ser
            6340               6345               6350

gcc agc gtg acc cgt  cgc cgt gaa cgc ttt  gcg gga gtc atg gcc    80698
Ala Ser Val Thr Arg  Arg Arg Glu Arg Phe  Ala Gly Val Met Ala
            6355               6360               6365

aaa ttt cta gat ttg  cat gaa ata ttg aag  gat gct taa tacatgggga 80747
Lys Phe Leu Asp Leu  His Glu Ile Leu Lys  Asp Ala
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cgataaatgg tctaaatact tcacgcgtgt gccttggttt gcaaccttag atcaat atg   80866
                                                                  Met

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Ser Arg  Arg Thr Tyr Val Arg  Ser Glu Arg Arg Arg  Gly Cys Gly
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gat aat  ctt tta caa cgt att  cgg ttg gtg gta cca  agc gct ctt    80956
Asp Asn  Leu Leu Gln Arg Ile  Arg Leu Val Val Pro  Ser Ala Leu
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Gln Cys Cys Asp Gly Asp Leu  Pro Ile Phe Asp Pro  Gln Arg Pro
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ccc gcc cgt tgt gtt ttt cag  ttt aac ggc gaa gac  aac gta tcc    81046
Pro Ala Arg Cys Val Phe Gln  Phe Asn Gly Glu Asp  Asn Val Ser
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gaa gcc ttt ccg gta gag tat  att atg cgt tta atg  gcg aat tgg    81091
Glu Ala Phe Pro Val Glu Tyr  Ile Met Arg Leu Met  Ala Asn Trp
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gcg caa gta gat tgt gac cct  tac ata aaa att caa  aat acg ggg    81136
Ala Gln Val Asp Cys Asp Pro  Tyr Ile Lys Ile Gln  Asn Thr Gly
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gtg tct gtg cta ttt caa ggt  ttt ttt ttt cgt ccg  act aac gca    81181
Val Ser Val Leu Phe Gln Gly  Phe Phe Phe Arg Pro  Thr Asn Ala
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cca gtg gct gaa gtg tcc att  gac agt aat aac gtg  att ctt agt    81226
Pro Val Ala Glu Val Ser Ile  Asp Ser Asn Asn Val  Ile Leu Ser
    6485                 6490                 6495

tca acg tta agt acc ggt atc  aac cta tct gct ttg  gaa tca att    81271
Ser Thr Leu Ser Thr Gly Ile  Asn Leu Ser Ala Leu  Glu Ser Ile
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aaa cga ggt ggg ggt att gac  cgc cga cct ctc cag  gct tta atg    81316
Lys Arg Gly Gly Gly Ile Asp  Arg Arg Pro Leu Gln  Ala Leu Met
    6515                 6520                 6525

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Trp Val Asn Cys Phe Val Arg  Met Pro Tyr Val Gln  Leu Ser Phe
    6530                 6535                 6540

cgt ttt atg gga ccg gaa gat  cca tct cgc acc att  aaa ctt atg    81406
Arg Phe Met Gly Pro Glu Asp  Pro Ser Arg Thr Ile  Lys Leu Met
    6545                 6550                 6555

gcc cgc gcc acg gat gca tac  atg tat aag gaa act  ggc aat aat    81451
Ala Arg Ala Thr Asp Ala Tyr  Met Tyr Lys Glu Thr  Gly Asn Asn
    6560                 6565                 6570

ttg gat gaa tat ata cgc tgg  cgg cct tca ttc aga  tcc cca ccc    81496
Leu Asp Glu Tyr Ile Arg Trp  Arg Pro Ser Phe Arg  Ser Pro Pro
    6575                 6580                 6585

gag aac gga agt cca aac acg  tct gtt caa atg caa  agt gac att    81541
Glu Asn Gly Ser Pro Asn Thr  Ser Val Gln Met Gln  Ser Asp Ile
    6590                 6595                 6600

aaa cct gcg tta ccc gat acc  caa act acg cgt gtc  tgg aaa ctt    81586
Lys Pro Ala Leu Pro Asp Thr  Gln Thr Thr Arg Val  Trp Lys Leu
    6605                 6610                 6615

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Ala Leu Pro Val Ala Asn Val  Thr Tyr Ala Leu Phe  Ile Val Ile
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Pro Ser  Asn Pro Thr Thr Phe  Ser Val Glu Ala Ile  Ala Ala Tyr
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Thr Pro  Val Ala Leu Ile Arg  Leu Leu Asn Ala Ser  Gly Pro Leu
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Gln Pro  Gly His Arg Val Asp  Ile Ala Asp Ala Arg  Ser Ile Tyr
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Thr Val  Gly Ala Ala Ala Ser  Ala Ala Arg Ala Arg  Ala Asn His
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Asn Ala  Asn Thr Ile Arg Arg  Thr Ala Met Phe Ala  Glu Thr Asp
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Pro Met  Thr Trp Leu Arg Pro  Thr Val Gly Leu Lys  Arg Thr Phe
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Asn Pro  Arg Ile Ile Arg Pro  Gln Pro Pro Asn Pro  Ser Met Ser
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Leu Gly  Ile Ser Gly Pro Thr  Ile Leu Pro Gln Lys  Thr Gln Ser
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Ala Asp  Gln Ser Ala Leu Gln  Gln Pro Ala Ala Leu  Ala Phe Ser
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Gly Ser  Ser Pro Gln His Pro  Pro Pro Gln Thr Thr  Ser Ala Ser
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Ser Pro  Pro Ala Ala Gln Gly  Val Pro Gln Ser Thr  Pro Pro Pro
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gttaaaaccg cgcccatctg aggtccagaa tccacaataa actgttgcct ggagtccata   91274

acgaatgaaa ctgctgcctt gtgatcttcc agatttcggg cgtgactcat atatgaggtt   91334

ggggcattta cacgatcctc ttgtatattt tttaaaccgc gcctcaattc attacacacg   91394

gttgcaatag attcggccga cgggactgcc gtggcatgcc tacaagctgt tgctattcgt   91454

tcccacctat ttaaaaaaat ctctacattt gcaagaccgg gtatattttc tcctgttgtt   91514

agtttgtcaa cacgcattaa aatgtccatt tgatcctgtg taaaccgtgc ataccgggaa   91574

gccatcgttg aaaaaagagg cccaatagca gaagtggagg ttttagtcat taaattttca   91634

cattccctaa gggctgagga agcatcggcc ataattgtgc gcaggctgga tattcccact   91694

ctcatttgcg ttcggattcc ttgtattgtc ccaacaatat gaccaaccgc atcagcaaga   91754
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tcgtttaaac gccatacccc aaattgttca tcgcgttcaa cctttgggtt acagatacca 91814

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ctatttgtaa tagaaggacg gtcaggaacc aaaggacgga cgtgctgggg aagcaggtca 92054

acggcaatgc caacagtccg atgaagttcg catataaggg aatctatagt agaaacgtga 92114

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gatagttttg tgcgatatcc atctgcattg ggcacggttc cggatccata atcgcgagcc 92234

cactgaagaa tagacaaggc ttgctgtatt ccccgtgtat caaaagacaa agctattgtt 92294

gccgaaaggg catcaagcgt gcttgttgca ataatataag gcacaaacga cggttccaca 92354

aacacgctag agcgattata ttcggtagga tatgcaatct ttagtgcttc tgttatcatg 92414

acagcttcca accctgtagc cggtggatca acacaaatag gaggtgtcat acccacatcc 92474

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tcgcgtacgg cactttgtcc tgcttgtggt aataacgcac ctgaggattg attatgtgtt 92594

tgcttaaaat atgttgtctc tctagcttct gcatgtgaaa tttcattaag tagtattacg 92654

cgtgtcgctt gtatactttc aataaggggt cgtggagcaa aacagcgccg cataatttgt 92714

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gttagaggag tgagtgagct attttgaatc tgattccaca taacattaaa cggaagaagc 93494

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atcgcaaatt tatgttgtgt taaagctgca atggcgcttt ccaacattcc aatacgagcg 93614

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tgagtgaatg gtgattcaat ggctgttgtt gcatccttta aggcgacctc gtacatattt    93674

atccagtccg ttataatgaa gtgtatcgaa acgggtccaa atttagacga ggttcgtaat    93734

ttattggccg ataaacgatg taacgtctcg gaatcttgta ctacacttga tagctgggtt    93794

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aacagtccgg gtaaattttc ggccgtgaaa gcagcctccg ccaaaaatgt attggaatat    93914

acaaaacaga tattagaatg caggggttcc catatctgaa taaaatgttt agctggaatt    93974

ttctgggtag atcgtaaaaa cttaactacc ttaactctgg cgatttctgt tttctctggt    94034

gaccatggtc tttcgttgtc cgcttcttgt actttcaagt tacttaaatc atccaaaagt    94094

ttttgtgtat cataacaaat tggttcttcc atggtatatt ctacgctgac ttaactttat    94154

aacgtgatat gaaaaagcta catccgtccg gaatgaaaag acataaatgt aacatcaata    94214

aaaacgcatg ttaataaaaa ggacgtcacg gtaagttgaa gaacctttta acgccaatca    94274

aaatattttt ataggctcct cctacctaac attatataaa cggtactacg actgtataat    94334

gtgtacacat accccaggca acatttcaga tagtaccacg tcacgattgc attgtgtgaa    94394
```

```
tttaacccct cagct atg ggg agt caa  cca acc aac tcg cat  ttt act       94442
             Met Gly Ser Gln  Pro Thr Asn Ser His  Phe Thr
                         6885                 6890
```

```
tta aac gaa  caa acg cta tgt gga  act aat atc agt ctt  tta gga       94487
Leu Asn Glu  Gln Thr Leu Cys Gly  Thr Asn Ile Ser Leu  Leu Gly
        6895             6900                 6905
```

```
aat aac cgt  ttt att caa ata ggg  aac ggg ctt cat atg  act tat       94532
Asn Asn Arg  Phe Ile Gln Ile Gly  Asn Gly Leu His Met  Thr Tyr
        6910             6915                 6920
```

```
gct ccg ggc  ttc ttc gga aat tgg  agt cgc gat tta aca  att ggc       94577
Ala Pro Gly  Phe Phe Gly Asn Trp  Ser Arg Asp Leu Thr  Ile Gly
        6925             6930                 6935
```

```
cct cgc ttt  gga ggt ctg aac aaa  caa ccg ata cat gta  cca cca       94622
Pro Arg Phe  Gly Gly Leu Asn Lys  Gln Pro Ile His Val  Pro Pro
        6940             6945                 6950
```

```
aaa cgt aca  gaa acc gcg tct att  caa gta acc ccc cgt  tca att       94667
Lys Arg Thr  Glu Thr Ala Ser Ile  Gln Val Thr Pro Arg  Ser Ile
        6955             6960                 6965
```

```
gtt att aat  cgt atg aac aac att  caa ata aat cca act  tca att       94712
Val Ile Asn  Arg Met Asn Asn Ile  Gln Ile Asn Pro Thr  Ser Ile
        6970             6975                 6980
```

```
ggt aac ccg  caa gtt acc att aga  ctc ccg tta aat aat  ttt aaa       94757
Gly Asn Pro  Gln Val Thr Ile Arg  Leu Pro Leu Asn Asn  Phe Lys
        6985             6990                 6995
```

```
tca acg aca  cag cta atc caa caa  gtg tca tta acc gat  ttt ttt       94802
Ser Thr Thr  Gln Leu Ile Gln Gln  Val Ser Leu Thr Asp  Phe Phe
        7000             7005                 7010
```

```
cgt ccg gac  att gag cat gct ggg  tca atc gtc tta atc  ctt cgt       94847
```

```
Arg Pro Asp  Ile Glu His Ala Gly  Ser Ile Val Leu Ile  Leu Arg
        7015                 7020             7025

cat cca tct gac atg att gga gaa gct aat aca ctt aca cag gct            94892
His Pro Ser Asp Met Ile Gly Glu Ala Asn Thr Leu Thr Gln Ala
        7030                 7035             7040

gga cgt gac ccc gat gta cta cta gag ggt tta cga aac cta ttc            94937
Gly Arg Asp Pro Asp Val Leu Leu Glu Gly Leu Arg Asn Leu Phe
        7045                 7050             7055

aat gcc tgc acg gct cct tgg acc gtt gga gaa ggt ggg ggg ctt            94982
Asn Ala Cys Thr Ala Pro Trp Thr Val Gly Glu Gly Gly Gly Leu
        7060                 7065             7070

aga gca tat gta acg tca tta agt ttc atc gcc gca tgc cgg gca            95027
Arg Ala Tyr Val Thr Ser Leu Ser Phe Ile Ala Ala Cys Arg Ala
        7075                 7080             7085

gaa gaa tat acg gat aaa cag gca gcg gat gcc aac aga aca gca            95072
Glu Glu Tyr Thr Asp Lys Gln Ala Ala Asp Ala Asn Arg Thr Ala
        7090                 7095             7100

att gtt tct gcc tat gga tgc agt cgt atg gaa acg cgg ctc ata            95117
Ile Val Ser Ala Tyr Gly Cys Ser Arg Met Glu Thr Arg Leu Ile
        7105                 7110             7115

agg ttt tcg gag tgt tta cgt gcg atg gta caa tgt cat gta ttt            95162
Arg Phe Ser Glu Cys Leu Arg Ala Met Val Gln Cys His Val Phe
        7120                 7125             7130

cca cat cga ttt ata agt ttt ttt ggg tcc ctg ctg gaa tat acc            95207
Pro His Arg Phe Ile Ser Phe Phe Gly Ser Leu Leu Glu Tyr Thr
        7135                 7140             7145

att cag gat aat tta tgc aat ata acc gcc gtg gcc aaa ggt ccc            95252
Ile Gln Asp Asn Leu Cys Asn Ile Thr Ala Val Ala Lys Gly Pro
        7150                 7155             7160

caa gaa gct gca cgt aca gac aaa act tca act cgc agg gtc aca            95297
Gln Glu Ala Ala Arg Thr Asp Lys Thr Ser Thr Arg Arg Val Thr
        7165                 7170             7175

gcc aac atc ccg gcc tgc gta ttt tgg gac gtt gac aaa gat tta            95342
Ala Asn Ile Pro Ala Cys Val Phe Trp Asp Val Asp Lys Asp Leu
        7180                 7185             7190

cat ctt tcc gcg gac gga ctg aag cat gtg ttc ttg gtt ttt gta            95387
His Leu Ser Ala Asp Gly Leu Lys His Val Phe Leu Val Phe Val
        7195                 7200             7205

tat aca cag cga cgc caa cga gaa ggt gta aga ctg cat ctt gca            95432
Tyr Thr Gln Arg Arg Gln Arg Glu Gly Val Arg Leu His Leu Ala
        7210                 7215             7220

tta agc caa cta aac gaa caa tgt ttt ggt cgt ggt att ggc ttc            95477
Leu Ser Gln Leu Asn Glu Gln Cys Phe Gly Arg Gly Ile Gly Phe
        7225                 7230             7235

ctg tta gga cgc ata cga gct gaa aat gcc gcc tgg ggg act gaa            95522
Leu Leu Gly Arg Ile Arg Ala Glu Asn Ala Ala Trp Gly Thr Glu
        7240                 7245             7250
```

```
ggg gtt gca  aat acc cac cag cca  tat aac aca agg gcg  ttg ccg        95567
Gly Val Ala  Asn Thr His Gln Pro  Tyr Asn Thr Arg Ala  Leu Pro
        7255              7260              7265

ctt gtg cag  tta tcc aat gac ccg  aca agc cct cga tgt  agt att        95612
Leu Val Gln  Leu Ser Asn Asp Pro  Thr Ser Pro Arg Cys  Ser Ile
        7270              7275              7280

ggc gaa att  aca gga gta aat tgg  aac ttg gct aga cag  cga ttg        95657
Gly Glu Ile  Thr Gly Val Asn Trp  Asn Leu Ala Arg Gln  Arg Leu
        7285              7290              7295

tat caa tgg  acc ggc gat ttt cgg  gga ctt ccc aca caa  tta tcc        95702
Tyr Gln Trp  Thr Gly Asp Phe Arg  Gly Leu Pro Thr Gln  Leu Ser
        7300              7305              7310

tgc atg tat  gcg gca tat acg tta  att gga aca att cca  tca gag        95747
Cys Met Tyr  Ala Ala Tyr Thr Leu  Ile Gly Thr Ile Pro  Ser Glu
        7315              7320              7325

tct gtg cgt  tat aca aga cgc atg  gaa cgg ttc gga ggt  tat aac        95792
Ser Val Arg  Tyr Thr Arg Arg Met  Glu Arg Phe Gly Gly  Tyr Asn
        7330              7335              7340

gtg cca act  att tgg tta gag ggg  gtt gtg tgg ggg ggt  aca aat        95837
Val Pro Thr  Ile Trp Leu Glu Gly  Val Val Trp Gly Gly  Thr Asn
        7345              7350              7355

aca tgg aac  gaa tgt tat tat taa agcatgtatg taaaataaac tgaatttaac    95891
Thr Trp Asn  Glu Cys Tyr Tyr
        7360

atagcgtggg ttttgcgtga tattatatac tggggagggg caggctgtac gtaaccatat    95951

ataagggagt ctacaatatt gtagaactaa ctcagctgtg agtttagggt ttaaaggttt    96011

attccggagc ctaaatacgt tatccgtt atg  gag ttc aaa aga att  ttt aat     96063
                                Met  Glu Phe Lys Arg Ile  Phe Asn
                                7365              7370

acg gtt cat  gac att ata aac cga  tta tgt caa cat ggc  tac aag        96108
Thr Val His  Asp Ile Ile Asn Arg  Leu Cys Gln His Gly  Tyr Lys
        7375              7380              7385

gaa tac atc  att ccg ccc gaa tca  acc aca ccg gtg gaa  tta atg        96153
Glu Tyr Ile  Ile Pro Pro Glu Ser  Thr Thr Pro Val Glu  Leu Met
        7390              7395              7400

gag tat att  agc act atc gtc tca  aaa ctt aag gcg gtg  acg cga        96198
Glu Tyr Ile  Ser Thr Ile Val Ser  Lys Leu Lys Ala Val  Thr Arg
        7405              7410              7415

caa gat gag  cga gtg tac cga tgt  tgt gga gaa ctt atc  cat tgc        96243
Gln Asp Glu  Arg Val Tyr Arg Cys  Cys Gly Glu Leu Ile  His Cys
        7420              7425              7430

cgt att aac  cta cga tcc gtt tcc  atg gaa acg tgg ttg  act tcc        96288
Arg Ile Asn  Leu Arg Ser Val Ser  Met Glu Thr Trp Leu  Thr Ser
        7435              7440              7445

cca att ctc  tgt tta act ccc cga  gtc cgc caa gca att  gaa ggg        96333
Pro Ile Leu  Cys Leu Thr Pro Arg  Val Arg Gln Ala Ile  Glu Gly
        7450              7455              7460
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cgg agg gac   gaa att cgt cgg gct   ata tta gaa ccg ttt   ttg aaa        96378
Arg Arg Asp   Glu Ile Arg Arg Ala   Ile Leu Glu Pro Phe   Leu Lys
        7465            7470                 7475

gat caa tac   ccc gct tta gct acc   ctt gga cta cag tct   gct tta        96423
Asp Gln Tyr   Pro Ala Leu Ala Thr   Leu Gly Leu Gln Ser   Ala Leu
        7480            7485                 7490

aag tac gaa   gac ttt tat tta act   aag tta gag gaa ggt   aaa tta        96468
Lys Tyr Glu   Asp Phe Tyr Leu Thr   Lys Leu Glu Glu Gly   Lys Leu
        7495            7500                 7505

gag tcg ctt   tgc caa ttc ttt tta   aga ctg gcg gcc acc   gtg aca        96513
Glu Ser Leu   Cys Gln Phe Phe Leu   Arg Leu Ala Ala Thr   Val Thr
        7510            7515                 7520

aca gaa atc   gta aac ctg cct aaa   atc gca act ctt att   ccc gga        96558
Thr Glu Ile   Val Asn Leu Pro Lys   Ile Ala Thr Leu Ile   Pro Gly
        7525            7530                 7535

ata aat gat   ggt tat aca tgg act   gat gtc tgt cgg gta   ttt ttc        96603
Ile Asn Asp   Gly Tyr Thr Trp Thr   Asp Val Cys Arg Val   Phe Phe
        7540            7545                 7550

aca gcg ttg   gca tgt cag aaa att   gtc ccg gct aca ccg   gtt atg        96648
Thr Ala Leu   Ala Cys Gln Lys Ile   Val Pro Ala Thr Pro   Val Met
        7555            7560                 7565

atg ttt tta   ggt cga gag acc ggg   gca acg gcc agt tgt   tat tta        96693
Met Phe Leu   Gly Arg Glu Thr Gly   Ala Thr Ala Ser Cys   Tyr Leu
        7570            7575                 7580

atg gac ccg   gaa tcc atc act gtt   ggg aga gct gtt cga   gct atc        96738
Met Asp Pro   Glu Ser Ile Thr Val   Gly Arg Ala Val Arg   Ala Ile
        7585            7590                 7595

aca ggc gat   gtg gga acg gta tta   caa agt cga ggt gga   gtg gga        96783
Thr Gly Asp   Val Gly Thr Val Leu   Gln Ser Arg Gly Gly   Val Gly
        7600            7605                 7610

att tct cta   cag agt ctg aat tta   ata cct acg gaa aat   caa acg        96828
Ile Ser Leu   Gln Ser Leu Asn Leu   Ile Pro Thr Glu Asn   Gln Thr
        7615            7620                 7625

aaa ggt ctt   ctt gca gtt tta aaa   ctt tta gat tgc atg   gtt atg        96873
Lys Gly Leu   Leu Ala Val Leu Lys   Leu Leu Asp Cys Met   Val Met
        7630            7635                 7640

gca att aac   agt gat tgt gaa cga   cca act gga gtt tgt   gtt tac        96918
Ala Ile Asn   Ser Asp Cys Glu Arg   Pro Thr Gly Val Cys   Val Tyr
        7645            7650                 7655

ata gaa cca   tgg cac gtc gat cta   caa act gtt ttg gcc   aca cgt        96963
Ile Glu Pro   Trp His Val Asp Leu   Gln Thr Val Leu Ala   Thr Arg
        7660            7665                 7670

gga atg ttg   gtt cgt gat gaa ata   ttt cga tgt gat aac   ata ttt        97008
Gly Met Leu   Val Arg Asp Glu Ile   Phe Arg Cys Asp Asn   Ile Phe
        7675            7680                 7685

tgt tgt tta   tgg acc cca gat tta   ttt ttt gaa aga tac   cta agc        97053
Cys Cys Leu   Trp Thr Pro Asp Leu   Phe Phe Glu Arg Tyr   Leu Ser
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                                                                        7690                              7695                           7700

tat cta aaa  ggg gct agt aat gtt  cag tgg act ctt ttt  gat aac      97098
Tyr Leu Lys  Gly Ala Ser Asn Val  Gln Trp Thr Leu Phe  Asp Asn
        7705                  7710                  7715

aga gcc gat  atc ctt cga aca tta  cac ggg gag gca ttc  act tca      97143
Arg Ala Asp  Ile Leu Arg Thr Leu  His Gly Glu Ala Phe  Thr Ser
        7720                  7725                  7730

acc tat tta  cgt tta gag aga gaa  gga tta ggc gtt tct  tct gtt      97188
Thr Tyr Leu  Arg Leu Glu Arg Glu  Gly Leu Gly Val Ser  Ser Val
        7735                  7740                  7745

ccc att caa  gat atc gca ttc aca  atc ata cgc agt gct  gct gta      97233
Pro Ile Gln  Asp Ile Ala Phe Thr  Ile Ile Arg Ser Ala  Ala Val
        7750                  7755                  7760

aca gga agc  ccc ttt tta atg ttc  aaa gat gcc tgt aat  cgt aat      97278
Thr Gly Ser  Pro Phe Leu Met Phe  Lys Asp Ala Cys Asn  Arg Asn
        7765                  7770                  7775

tat cat atg  aat acc caa gga aat  gct atc acg ggg tca  aat ttg      97323
Tyr His Met  Asn Thr Gln Gly Asn  Ala Ile Thr Gly Ser  Asn Leu
        7780                  7785                  7790

tgt acg gaa  att gtt caa aag gca  gac gct cat caa cat  ggc gta      97368
Cys Thr Glu  Ile Val Gln Lys Ala  Asp Ala His Gln His  Gly Val
        7795                  7800                  7805

tgt aat ctt  gcc agc ata aat ctt  aca acg tgc tta tcc  aaa ggc      97413
Cys Asn Leu  Ala Ser Ile Asn Leu  Thr Thr Cys Leu Ser  Lys Gly
        7810                  7815                  7820

cca gtg tca  ttt aat tta aac gac  ctt caa ttg aca gca  aga acg      97458
Pro Val Ser  Phe Asn Leu Asn Asp  Leu Gln Leu Thr Ala  Arg Thr
        7825                  7830                  7835

act gtt att  ttt tta aac ggg gtc  ctg gcg gct ggg aac  ttt cca      97503
Thr Val Ile  Phe Leu Asn Gly Val  Leu Ala Ala Gly Asn  Phe Pro
        7840                  7845                  7850

tgt aaa aaa  tca tgt aaa ggt gta  aaa aac aac cga tca  ctt ggc      97548
Cys Lys Lys  Ser Cys Lys Gly Val  Lys Asn Asn Arg Ser  Leu Gly
        7855                  7860                  7865

att ggc ata  caa ggg tta cat aca  act tgt ctc cgc tta  gga ttt      97593
Ile Gly Ile  Gln Gly Leu His Thr  Thr Cys Leu Arg Leu  Gly Phe
        7870                  7875                  7880

gat tta act  tcc caa cca gct aga  cgg tta aat gta caa  ata gcg      97638
Asp Leu Thr  Ser Gln Pro Ala Arg  Arg Leu Asn Val Gln  Ile Ala
        7885                  7890                  7895

gag tta atg  ttg tat gag aca atg  aaa aca agc atg gaa  atg tgt      97683
Glu Leu Met  Leu Tyr Glu Thr Met  Lys Thr Ser Met Glu  Met Cys
        7900                  7905                  7910

aag att ggc  ggc tta gcc ccg ttt  aag ggt ttt acc gaa  agt aaa      97728
Lys Ile Gly  Gly Leu Ala Pro Phe  Lys Gly Phe Thr Glu  Ser Lys
        7915                  7920                  7925

tat gct aag  gga tgg tta cac caa  gat ggg ttt tct acg  ata agt      97773
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            Tyr Ala Lys  Gly Trp Leu His Gln  Asp Gly Phe Ser Thr  Ile Ser
                    7930              7935                 7940

tat tta gat  tta cca tgg tgt acc  ctg cga gat gat att  tgc gct         97818
Tyr Leu Asp  Leu Pro Trp Cys Thr  Leu Arg Asp Asp Ile  Cys Ala
        7945              7950                 7955

tat ggg tta  tac aac tcg cag ttc  tta gcg tta atg ccc  aca gtt         97863
Tyr Gly Leu  Tyr Asn Ser Gln Phe  Leu Ala Leu Met Pro  Thr Val
        7960              7965                 7970

tca tct gca  cag gta acg gag tgc  agt gag ggt ttc tct  cca att         97908
Ser Ser Ala  Gln Val Thr Glu Cys  Ser Glu Gly Phe Ser  Pro Ile
        7975              7980                 7985

tat aat aat  atg ttt agt aag gtc  acc acc tcg ggt gag  tta ctt         97953
Tyr Asn Asn  Met Phe Ser Lys Val  Thr Thr Ser Gly Glu  Leu Leu
        7990              7995                 8000

aga ccc aac  tta gac ctt atg gac  gaa cta aga gat atg  tat tca         97998
Arg Pro Asn  Leu Asp Leu Met Asp  Glu Leu Arg Asp Met  Tyr Ser
        8005              8010                 8015

tgt gaa gaa  aaa cga ctg gaa gtt  ata aac ata ctt gag  aaa aac         98043
Cys Glu Glu  Lys Arg Leu Glu Val  Ile Asn Ile Leu Glu  Lys Asn
        8020              8025                 8030

caa tgg tca  gta ata cgt tcg ttt  ggc tgt tta tct aat  agt cac         98088
Gln Trp Ser  Val Ile Arg Ser Phe  Gly Cys Leu Ser Asn  Ser His
        8035              8040                 8045

cca ctc tta  aaa tat aaa aca gcg  ttt gaa tat gag caa  gag gat         98133
Pro Leu Leu  Lys Tyr Lys Thr Ala  Phe Glu Tyr Glu Gln  Glu Asp
        8050              8055                 8060

ctc gtt gat  atg tgt gca gaa agg  gcg cca ttt att gac  caa agt         98178
Leu Val Asp  Met Cys Ala Glu Arg  Ala Pro Phe Ile Asp  Gln Ser
        8065              8070                 8075

caa tca atg  act tta ttt att gag  gaa cgc cca gac ggg  aca att         98223
Gln Ser Met  Thr Leu Phe Ile Glu  Glu Arg Pro Asp Gly  Thr Ile
        8080              8085                 8090

ccc gcc tcc  aaa ata atg aat ttg  ctt ata cgt gcc tat  aaa gcc         98268
Pro Ala Ser  Lys Ile Met Asn Leu  Leu Ile Arg Ala Tyr  Lys Ala
        8095              8100                 8105

ggc ctt aaa  acg ggt atg tac tac  tgt aaa att cgt aaa  gct acg         98313
Gly Leu Lys  Thr Gly Met Tyr Tyr  Cys Lys Ile Arg Lys  Ala Thr
        8110              8115                 8120

aac agc gga  ctg ttt gcg gga ggc  gaa tta acc tgt acc  agt tgt         98358
Asn Ser Gly  Leu Phe Ala Gly Gly  Glu Leu Thr Cys Thr  Ser Cys
        8125              8130                 8135

gct tta taa atttacacgg gaaactattc caaa atg  gat cag aaa gat tgc         98409
Ala Leu                                 Met  Asp Gln Lys Asp Cys
                                        8140                 8145

agt cat ttt ttt tac  agg ccg gag tgt cca  gat ata aac aat tta         98454
Ser His Phe Phe Tyr  Arg Pro Glu Cys Pro  Asp Ile Asn Asn Leu
            8150              8155                 8160
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cgt gcc ctg agc att  tcg aat cgt tgg tta  gaa agc gat ttt atc        98499
Arg Ala Leu Ser Ile  Ser Asn Arg Trp Leu  Glu Ser Asp Phe Ile
            8165              8170               8175

att gaa gat gat tat  caa tac ttg gac tgt  tta acg gaa gat gaa        98544
Ile Glu Asp Asp Tyr  Gln Tyr Leu Asp Cys  Leu Thr Glu Asp Glu
            8180              8185               8190

cta ata ttc tac aga  ttt att ttt aca ttt  tta tcg gcg gca gat        98589
Leu Ile Phe Tyr Arg  Phe Ile Phe Thr Phe  Leu Ser Ala Ala Asp
            8195              8200               8205

gat ctg gta aat gtt  aat ttg ggc tct cta  acc caa ctc ttt tcc        98634
Asp Leu Val Asn Val  Asn Leu Gly Ser Leu  Thr Gln Leu Phe Ser
            8210              8215               8220

caa aag gat att cac  cat tac tac att gaa  caa gag tgc atc gag        98679
Gln Lys Asp Ile His  His Tyr Tyr Ile Glu  Gln Glu Cys Ile Glu
            8225              8230               8235

gtt gtc cac gcg cgt  gtc tat agt caa att  caa cta atg ttg ttc        98724
Val Val His Ala Arg  Val Tyr Ser Gln Ile  Gln Leu Met Leu Phe
            8240              8245               8250

aga ggg gat gaa tcg  ttg cgg gta caa tac  gta aat gtc act att        98769
Arg Gly Asp Glu Ser  Leu Arg Val Gln Tyr  Val Asn Val Thr Ile
            8255              8260               8265

aat aat ccg tcg atc  caa caa aaa gta caa  tgg ttg gaa gaa aag        98814
Asn Asn Pro Ser Ile  Gln Gln Lys Val Gln  Trp Leu Glu Glu Lys
            8270              8275               8280

gta cgg gac aac cca  tcc gtt gca gaa aaa  tat ata cta atg att        98859
Val Arg Asp Asn Pro  Ser Val Ala Glu Lys  Tyr Ile Leu Met Ile
            8285              8290               8295

ctt ata gag ggc att  ttt ttt gta tca tcg  ttc gcg gct att gca        98904
Leu Ile Glu Gly Ile  Phe Phe Val Ser Ser  Phe Ala Ala Ile Ala
            8300              8305               8310

tat tta cgc aat aac  gga cta ttt gtt gta  act tgt caa ttt aac        98949
Tyr Leu Arg Asn Asn  Gly Leu Phe Val Val  Thr Cys Gln Phe Asn
            8315              8320               8325

gac ctt ata agc cga  gat gaa gcc ata cat  acc agc gca tcg tgt        98994
Asp Leu Ile Ser Arg  Asp Glu Ala Ile His  Thr Ser Ala Ser Cys
            8330              8335               8340

tgt ata tac aat aac  tat gta ccc gaa aaa  ccc gct atc acc aga        99039
Cys Ile Tyr Asn Asn  Tyr Val Pro Glu Lys  Pro Ala Ile Thr Arg
            8345              8350               8355

ata cat caa ctg ttt  tcg gaa gcc gtt gaa  atc gag tgt gcg ttt        99084
Ile His Gln Leu Phe  Ser Glu Ala Val Glu  Ile Glu Cys Ala Phe
            8360              8365               8370

tta aaa tcc cat gca  ccc aaa acc cgt ttg  gtg aac gtc gat gca        99129
Leu Lys Ser His Ala  Pro Lys Thr Arg Leu  Val Asn Val Asp Ala
            8375              8380               8385

att aca caa tac gtg  aaa ttc agc gcg gac  agg ctt tta tca gcg        99174
Ile Thr Gln Tyr Val  Lys Phe Ser Ala Asp  Arg Leu Leu Ser Ala
            8390              8395               8400
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att aat gta cca aaa  cta ttt aac acc cca  cct ccc gat tcg gac        99219
Ile Asn Val Pro Lys  Leu Phe Asn Thr Pro  Pro Pro Asp Ser Asp
            8405                   8410                   8415

ttt cca ctt gca ttt  atg att gca gat aaa  aac aca aat ttt ttt        99264
Phe Pro Leu Ala Phe  Met Ile Ala Asp Lys  Asn Thr Asn Phe Phe
            8420                   8425                   8430

gag aga cac agt aca  tct tat gcg ggc aca  gtg ata aac gat tta        99309
Glu Arg His Ser Thr  Ser Tyr Ala Gly Thr  Val Ile Asn Asp Leu
            8435                   8440                   8445
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taa catgtatata cgagcaaaat aaaacaatga accattaagt cgctcttatg     99362

tgtgttttaa ttccaatatt ttgttaatac agtgtttagt gggagtggag taggaataaa  99422

ctgtttaaaa atacgtgcgt attggcgagc catttttcc ccctttaagt tatgatataa   99482

ggtgttaata accatatatg ggtctgccgt attttgcata atatttacac gtttcattaa   99542

ctttaggcga ccgcgggtca atggagttac cacggcgatt atatgttcaa caaatgcgcg   99602

ttccaaatta tccaatgggg aggatgaggg tggcagaagg tttaaagccc aactggcgtc   99662

tactgtcacc tccgatcggt tagatgcata tttggaaacg gacactccgt tttctgtttt   99722

acccgacgtg gctacggtaa gactttttgaa aacctcgcca tgtctccacg agtcgtaagt  99782

ggggggagcgc gttgaagtgt ccatttgatg tggaactttc aggccggtat cctgaataac  99842

ttgctgaaca gatttttaggt tgtcacttgt atgcaaatcg gtctgacagc gaacaaaggc  99902

aaccaaaaat tcagggtatg taattcctaa atattgaagc aaatcgcgac atcgtactac   99962

tggagcaaac ataggaattg catctaacaa aatatcacag cccatgaaga gtaaatcagt   100022

atctgtcgta taaaccaaag ccactgtacg cgtatgaaat aagtttgcac atgcctcgtc   100082

cgcctcaatg tcaaccgcct cgacgtatgc atacccatc catctaataa gacttgcaca    100142

caatttgtga tataatcgat ggttaggatg tcctcgggat ggcattgtag aggtaagact   100202

gcatacgttt tggtcgcgca ggcagatcgt cttgtcagtt tgtcgtggac aaccgtccaa   100262

aaacatatcc tgggatttgt tttcttcgct aggaatacaa ctcgtggaag agtttcgaaa   100322

cacactgtca tatgtttccg atgttttgtt atacttgata gaacatgatg tgttggatga   100382

tagtagaaca cgggttaagt ccgaggttcc cctttcatcg tggttcatgg cccgtgacat   100442

aattgccttg gctccacgtg ataatgggcc gtctgtacaa cgttccaata caaatatcgg   100502

atagtatgac cgttgtgtta atagccgcaa taagactcca agacaatgta tcgttacaga   100562

tggtccgtgt aaattctcgc gtttacccac agggtataaa cgttccaaca atgtgtacat   100622

gacgttccat acgtctaccg ccacgggggt taaaactccg ggtggcgttg aaatgatgct   100682

gggtttaacc agtttatgtt catggataaa gcgtgtcagt ccaaagagcc ccatcaatac   100742

acttaaccaa gtttatatcg tcttgtgaaa ggtttcacag cggcttcagt aattcttcga   100802
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tgtgatcttg tgttaattac agacgtatat aatgatgtac atatttttta tgacaaacat 100862

tacatcaaat ctggtaactt cttacgtatt ttattgcaca gtccctatta aggaacaccc 100922

cctgtattgg aacacgtgga aatgttccct cccatgggcc gtactattca aatatcatgc 100982

ctgtttatgt acttaagtca ccggatcggg ttaaacaaac atattaacga aactcgtgtg 101042

tttacatatg attacttttt ctatagtaaa cattttaagt agtaaatt atg gat ttg 101099
                                                        Met Asp Leu

agg tcg cgt aca gac gat gct ttg gac atg gaa ttg cat gcg ggt   101144
Arg Ser Arg Thr Asp Asp Ala Leu Asp Met Glu Leu His Ala Gly
    8450   8455   8460

ttt gac gcc cca gaa atc gcc aga gct gtt tta acg gaa aaa acg   101189
Phe Asp Ala Pro Glu Ile Ala Arg Ala Val Leu Thr Glu Lys Thr
    8465   8470   8475

ctt act ggt tta att tcg tct ata tca cct ctg gtt aat aga cta   101234
Leu Thr Gly Leu Ile Ser Ser Ile Ser Pro Leu Val Asn Arg Leu
    8480   8485   8490

agg gat tct att tta ata ttc agc gac gaa gga tta att att cac   101279
Arg Asp Ser Ile Leu Ile Phe Ser Asp Glu Gly Leu Ile Ile His
    8495   8500   8505

tgt agt ttg gaa aca gaa caa ctg tat att cct ata ccg gca aat   101324
Cys Ser Leu Glu Thr Glu Gln Leu Tyr Ile Pro Ile Pro Ala Asn
    8510   8515   8520

atg ttt gac cag tat aat tgg act ggg ccg aga atg gtt gta ctc   101369
Met Phe Asp Gln Tyr Asn Trp Thr Gly Pro Arg Met Val Val Leu
    8525   8530   8535

gcg gca acg gag gga cgg tcc tcg ctt att gac gcg ttt cgc cat   101414
Ala Ala Thr Glu Gly Arg Ser Ser Leu Ile Asp Ala Phe Arg His
    8540   8545   8550

aca aaa gat ccg tcg acc cca aca cgg tta tat ttt aaa ttt acc   101459
Thr Lys Asp Pro Ser Thr Pro Thr Arg Leu Tyr Phe Lys Phe Thr
    8555   8560   8565

gga caa ccc ccc gag cgg agt att atc caa acg atg gta tgg caa   101504
Gly Gln Pro Pro Glu Arg Ser Ile Ile Gln Thr Met Val Trp Gln
    8570   8575   8580

cgc ccg ggt gat tgt ggt cca gat gat caa gta caa tgt tac aaa   101549
Arg Pro Gly Asp Cys Gly Pro Asp Asp Gln Val Gln Cys Tyr Lys
    8585   8590   8595

caa gtt gta aaa cgt gaa ctc gct tgt tat aca atg atg ttt cca   101594
Gln Val Val Lys Arg Glu Leu Ala Cys Tyr Thr Met Met Phe Pro
    8600   8605   8610

aat cta act cca gat ata agc att tgc tta aaa cgc gat caa ttc   101639
Asn Leu Thr Pro Asp Ile Ser Ile Cys Leu Lys Arg Asp Gln Phe
    8615   8620   8625

acc cgt tta cag cga cta ctt aaa act ttt ggg ttt aca aca tgc   101684
Thr Arg Leu Gln Arg Leu Leu Lys Thr Phe Gly Phe Thr Thr Cys
    8630   8635   8640

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ttc att cta aca gcc acg gat atg tac atc cag acc gcc ggg ggt    101729
Phe Ile Leu Thr Ala Thr Asp Met Tyr Ile Gln Thr Ala Gly Gly
    8645             8650             8655

ggt ttt atc tca ttt aat gtt tcc ttg gat ata aac gga agc aag    101774
Gly Phe Ile Ser Phe Asn Val Ser Leu Asp Ile Asn Gly Ser Lys
    8660             8665             8670

cct aca cca tat aat tta ata cgc tca atc aca aat tca aaa agg    101819
Pro Thr Pro Tyr Asn Leu Ile Arg Ser Ile Thr Asn Ser Lys Arg
    8675             8680             8685

atc ctt aat aat gtt gtt tat ggc agc ggg agt atg cgt gaa ttt    101864
Ile Leu Asn Asn Val Val Tyr Gly Ser Gly Ser Met Arg Glu Phe
    8690             8695             8700

gga gta tta ttg gaa aca cac agt gga ttc cgt tct gcc gta caa    101909
Gly Val Leu Leu Glu Thr His Ser Gly Phe Arg Ser Ala Val Gln
    8705             8710             8715

aat ctt aag tta aca cgg gat gag acg tgt tat att aat ttt tat    101954
Asn Leu Lys Leu Thr Arg Asp Glu Thr Cys Tyr Ile Asn Phe Tyr
    8720             8725             8730

ctc gcc tta act aac tcc ccc atg gtt gga ttg tat atc caa cgt    101999
Leu Ala Leu Thr Asn Ser Pro Met Val Gly Leu Tyr Ile Gln Arg
    8735             8740             8745

tcc gca ccc gtg cat tct ttt ttt tat gca acg ttc tta agt ccc    102044
Ser Ala Pro Val His Ser Phe Phe Tyr Ala Thr Phe Leu Ser Pro
    8750             8755             8760

aaa gac ctt aaa gaa aaa tta acc tcg atg caa tta ttt gcg aac    102089
Lys Asp Leu Lys Glu Lys Leu Thr Ser Met Gln Leu Phe Ala Asn
    8765             8770             8775

atg gaa tct gtg aag gat gaa cca cca tta aaa aaa aga cgc aat    102134
Met Glu Ser Val Lys Asp Glu Pro Pro Leu Lys Lys Arg Arg Asn
    8780             8785             8790

tta tta aca aaa aga aac gaa aaa aat acc gga aat aaa atg ggg    102179
Leu Leu Thr Lys Arg Asn Glu Lys Asn Thr Gly Asn Lys Met Gly
    8795             8800             8805

ggg aaa ctc ccc gaa acc aca tgg cag gag gga atc gga att cgc    102224
Gly Lys Leu Pro Glu Thr Thr Trp Gln Glu Gly Ile Gly Ile Arg
    8810             8815             8820

gaa tat tgt gtg gct cct cca gtg gac cct gca gga acc ctg gat    102269
Glu Tyr Cys Val Ala Pro Pro Val Asp Pro Ala Gly Thr Leu Asp
    8825             8830             8835

tat tct gaa tta tca cgt gaa tct gac gta ata tgt aca gtt aaa    102314
Tyr Ser Glu Leu Ser Arg Glu Ser Asp Val Ile Cys Thr Val Lys
    8840             8845             8850

taa gtgcaacttt tgcttatatt ttacatacaa acttgtgtgt accatagatg      102367

aacacatttt tatttgtttt gaattattaa acttaagac atg gcc  gtg aat ggt  102421
                                            Met Ala  Val Asn Gly
                                                8855
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gaa  aga  gct gtc cat gat gaa  aac ctg ggt gtg tta  gac aga gaa      102466
Glu  Arg  Ala Val His Asp Glu  Asn Leu Gly Val Leu  Asp Arg Glu
     8860              8865              8870

tta atc  cgc gct caa tca atc  caa gga tgt gtc gga  aac cct caa       102511
Leu Ile  Arg Ala Gln Ser Ile  Gln Gly Cys Val Gly  Asn Pro Gln
    8875              8880              8885

gaa tgt  aat tcg tgt gca ata  acc tca gca tcg cgg  ttg ttt ctc       102556
Glu Cys  Asn Ser Cys Ala Ile  Thr Ser Ala Ser Arg  Leu Phe Leu
    8890              8895              8900

gtg gga  cta caa gca agc gtt  atc acg tcc ggg tta  att tta caa       102601
Val Gly  Leu Gln Ala Ser Val  Ile Thr Ser Gly Leu  Ile Leu Gln
    8905              8910              8915

tat cac  gtc tgc gaa gct gcc  gtc aat gca act att  atg ggg ttg       102646
Tyr His  Val Cys Glu Ala Ala  Val Asn Ala Thr Ile  Met Gly Leu
    8920              8925              8930

atc gtc  gtt tcg ggg tta tgg  cca aca tcc gtg aaa  ttt cta cgc       102691
Ile Val  Val Ser Gly Leu Trp  Pro Thr Ser Val Lys  Phe Leu Arg
    8935              8940              8945

aca tta  gca aaa ttg gga cga  tgt ttg cag acg gtg  gtc gtg ttg       102736
Thr Leu  Ala Lys Leu Gly Arg  Cys Leu Gln Thr Val  Val Val Leu
    8950              8955              8960

ggt ttt  gct gtg tta tgg gcg  gtt ggt tgc cca ata  tcc cgg gat       102781
Gly Phe  Ala Val Leu Trp Ala  Val Gly Cys Pro Ile  Ser Arg Asp
    8965              8970              8975

ctt cca  ttt gta gaa tta ctg  gga att tcc ata tcc  gcg att acc       102826
Leu Pro  Phe Val Glu Leu Leu  Gly Ile Ser Ile Ser  Ala Ile Thr
    8980              8985              8990

gga aca  gtg gct gct gtg cat  atc cat tac tac aac  ttt gtt acg       102871
Gly Thr  Val Ala Ala Val His  Ile His Tyr Tyr Asn  Phe Val Thr
    8995              9000              9005

aca ttc  aat gga ccg cat att  tat ttt tat gtt atg  atg ttg gga       102916
Thr Phe  Asn Gly Pro His Ile  Tyr Phe Tyr Val Met  Met Leu Gly
    9010              9015              9020

act ggg  ttg gga ggt tta cta  acc gtt att tta tat  atg tat gtc       102961
Thr Gly  Leu Gly Gly Leu Leu  Thr Val Ile Leu Tyr  Met Tyr Val
    9025              9030              9035

agt aaa  tat gag gtt ctt att  gga ttg tgt ata tct  att gtc aca       103006
Ser Lys  Tyr Glu Val Leu Ile  Gly Leu Cys Ile Ser  Ile Val Thr
    9040              9045              9050

cta gtt  tca att gtc gat gcc  gcc acc gat ttg caa  gat acg tgt       103051
Leu Val  Ser Ile Val Asp Ala  Ala Thr Asp Leu Gln  Asp Thr Cys
    9055              9060              9065

ata tat  cgt aaa aat cgc cat  aag caa tta aac act  tat aca gat       103096
Ile Tyr  Arg Lys Asn Arg His  Lys Gln Leu Asn Thr  Tyr Thr Asp
    9070              9075              9080

tta ggt  ttt gcc gtt gta tat  aca caa aat gac cgc  ggg aga gta       103141
Leu Gly  Phe Ala Val Val Tyr  Thr Gln Asn Asp Arg  Gly Arg Val
    9085              9090              9095
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tgt gac  cat cga gaa agt tcc  cgg acc ctt aaa cgc  gtg ttt aaa      103186
Cys Asp  His Arg Glu Ser Ser  Arg Thr Leu Lys Arg  Val Phe Lys
    9100                 9105              9110

gga att  cgt ata atg tct gtt  ata ccc ccg gtg tta  tat ata gtt      103231
Gly Ile  Arg Ile Met Ser Val  Ile Pro Pro Val Leu  Tyr Ile Val
    9115                 9120              9125

acc cca  tta atg tgg gca atc  tca cat ata att aaa  tta aat cat      103276
Thr Pro  Leu Met Trp Ala Ile  Ser His Ile Ile Lys  Leu Asn His
    9130                 9135              9140

ttt atc  aaa ctt aca caa gta  acg tta gca gtt tca  ata gga ggt      103321
Phe Ile  Lys Leu Thr Gln Val  Thr Leu Ala Val Ser  Ile Gly Gly
    9145                 9150              9155

cat att  ata gca ttt ggg tta  cag ggt ttt gcc gtt  tta tat caa      103366
His Ile  Ile Ala Phe Gly Leu  Gln Gly Phe Ala Val  Leu Tyr Gln
    9160                 9165              9170

gaa aaa  aaa aac cta tgg gta  att gta tta tat aca  acg acc tcg      103411
Glu Lys  Lys Asn Leu Trp Val  Ile Val Leu Tyr Thr  Thr Thr Ser
    9175                 9180              9185

gtg acg  ggt ata gct gta aca  ttt gcc ggc att tca  tgg gga gct      103456
Val Thr  Gly Ile Ala Val Thr  Phe Ala Gly Ile Ser  Trp Gly Ala
    9190                 9195              9200

att ata  att cta aca tca aca  gtt gcg gcg ggt ttg  acg tgt att      103501
Ile Ile  Ile Leu Thr Ser Thr  Val Ala Ala Gly Leu  Thr Cys Ile
    9205                 9210              9215

cag atg  atg aga cta agc gtt  aaa cct att gac tgt  ttt atg gca      103546
Gln Met  Met Arg Leu Ser Val  Lys Pro Ile Asp Cys  Phe Met Ala
    9220                 9225              9230

tct cat  atc act aaa gta tat  cac gtg tgt gtt tat  att ata ata      103591
Ser His  Ile Thr Lys Val Tyr  His Val Cys Val Tyr  Ile Ile Ile
    9235                 9240              9245

aat cta  tgc tat cta tgt ggt  aca tat gta tcg taa tcgagataaa        103637
Asn Leu  Cys Tyr Leu Cys Gly  Thr Tyr Val Ser
    9250                 9255

taaagttttt aaagttgcaa aagccgtttt tattattccc aatgtcgaaa aaaacgtttc 103697

catcatttaa attccgcggt gggtgtttta atcttttatt taaggggagc gtggatgtgt 103757

caataaaaac cagg atg  aag cgg ata caa ata  aat tta att tta acg      103804
                 Met  Lys Arg Ile Gln Ile  Asn Leu Ile Leu Thr
                 9260              9265                 9270

atc gcg tgt ata caa  tta tcg act gaa tct  caa ccc aca ccc gta      103849
Ile Ala Cys Ile Gln  Leu Ser Thr Glu Ser  Gln Pro Thr Pro Val
             9275                 9280                 9285

agt ata act gaa tta  tat acc tcg gcc gct  acc cga aag ccc gat      103894
Ser Ile Thr Glu Leu  Tyr Thr Ser Ala Ala  Thr Arg Lys Pro Asp
             9290                 9295                 9300

ccc gcc gtc gcg ccc  acc tcg gcc gct tcc  cga aag ccc gat ccc      103939
Pro Ala Val Ala Pro  Thr Ser Ala Ala Ser  Arg Lys Pro Asp Pro
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                  9305                    9310                      9315
gcc gtc gcg ccc acc   tcg gcc gct tcc cga   aag ccc gat ccc gcc        103984
Ala Val Ala Pro Thr   Ser Ala Ala Ser Arg   Lys Pro Asp Pro Ala
                  9320                    9325                      9330

gtc gcg ccc acc tcg   gcc gct tcc cga aag   ccc gat ccc gcc gtc        104029
Val Ala Pro Thr Ser   Ala Ala Ser Arg Lys   Pro Asp Pro Ala Val
                  9335                    9340                      9345

gcg ccc acc tcg gcc   gct acc cga aag ccc   gat ccc gcc gtc gcg        104074
Ala Pro Thr Ser Ala   Ala Thr Arg Lys Pro   Asp Pro Ala Val Ala
                  9350                    9355                      9360

ccc acc tcg gcc gct   tcc cga aag ccc gat   ccc gcc gtc gcg ccc        104119
Pro Thr Ser Ala Ala   Ser Arg Lys Pro Asp   Pro Ala Val Ala Pro
                  9365                    9370                      9375

acc tcg gcc gct acc   cga aag ccc gat ccc   gcc gtc gcg ccc acc        104164
Thr Ser Ala Ala Thr   Arg Lys Pro Asp Pro   Ala Val Ala Pro Thr
                  9380                    9385                      9390

tcg gcc gct tcc cga   aag ccc gat ccc gca   gcc aac acc caa cat        104209
Ser Ala Ala Ser Arg   Lys Pro Asp Pro Ala   Ala Asn Thr Gln His
                  9395                    9400                      9405

tca caa cca cct ttt   cta tat gaa aat ata   caa tgc gtt cac ggc        104254
Ser Gln Pro Pro Phe   Leu Tyr Glu Asn Ile   Gln Cys Val His Gly
                  9410                    9415                      9420

gga ata caa tcc ata   ccc tat ttt cac aca   ttt atc atg cct tgt        104299
Gly Ile Gln Ser Ile   Pro Tyr Phe His Thr   Phe Ile Met Pro Cys
                  9425                    9430                      9435

tac atg cgt cta acg   acc gga caa cag gcg   gcc ttt aag cag caa        104344
Tyr Met Arg Leu Thr   Thr Gly Gln Gln Ala   Ala Phe Lys Gln Gln
                  9440                    9445                      9450

caa aaa aca tat gaa   caa tat tct tta gat   ccg gaa ggt tca aat        104389
Gln Lys Thr Tyr Glu   Gln Tyr Ser Leu Asp   Pro Glu Gly Ser Asn
                  9455                    9460                      9465

ata aca agg tgg aag   tcg ctt ata cgc ccc   gat ctt cat att gaa        104434
Ile Thr Arg Trp Lys   Ser Leu Ile Arg Pro   Asp Leu His Ile Glu
                  9470                    9475                      9480

gtt tgg ttt acg cgt   cac ctt ata gat ccg   cac cgt caa ctg ggc        104479
Val Trp Phe Thr Arg   His Leu Ile Asp Pro   His Arg Gln Leu Gly
                  9485                    9490                      9495

aat gcg tta ata cgc   atg cca gat tta ccg   gtt atg tta tat agc        104524
Asn Ala Leu Ile Arg   Met Pro Asp Leu Pro   Val Met Leu Tyr Ser
                  9500                    9505                      9510

aac agt gcc gat tta   aac tta ata aac aac   cct gag ata ttt aca        104569
Asn Ser Ala Asp Leu   Asn Leu Ile Asn Asn   Pro Glu Ile Phe Thr
                  9515                    9520                      9525

cac gct aag gaa aat   tat gta ata cca gat   gtt aaa aca acg tct        104614
His Ala Lys Glu Asn   Tyr Val Ile Pro Asp   Val Lys Thr Thr Ser
                  9530                    9535                      9540

gat ttt tct gta aca   att tta tct atg gat   gct acc acg gag gga        104659
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Asp Phe Ser Val Thr  Ile Leu Ser Met Asp  Ala Thr Thr Glu Gly
            9545              9550             9555

acg tat att tgg cga  gtc gtt aat aca aaa  act aag aac gtc ata    104704
Thr Tyr Ile Trp Arg  Val Val Asn Thr Lys  Thr Lys Asn Val Ile
            9560              9565             9570

tcg gaa cac agt att  aca gtt aca acg tat  tat cgt cca aat att    104749
Ser Glu His Ser Ile  Thr Val Thr Thr Tyr  Tyr Arg Pro Asn Ile
            9575              9580             9585

acc gtt gtc ggc gat  cca gtc tta acc gga  cag aca tac gca gcc    104794
Thr Val Val Gly Asp  Pro Val Leu Thr Gly  Gln Thr Tyr Ala Ala
            9590              9595             9600

tac tgt aac gta tca  aag tat tat cca ccg  cac tcg gta cgt gtt    104839
Tyr Cys Asn Val Ser  Lys Tyr Tyr Pro Pro  His Ser Val Arg Val
            9605              9610             9615

cgg tgg act tca agg  ttt ggt aac atc gga  aaa aat ttt ata acc    104884
Arg Trp Thr Ser Arg  Phe Gly Asn Ile Gly  Lys Asn Phe Ile Thr
            9620              9625             9630

gat gca ata caa gaa  tat gcc aat gga tta  ttt agt tat gtt tcg    104929
Asp Ala Ile Gln Glu  Tyr Ala Asn Gly Leu  Phe Ser Tyr Val Ser
            9635              9640             9645

gcg gta cga att cca  cag caa aaa caa atg  gat tac cca ccc cca    104974
Ala Val Arg Ile Pro  Gln Gln Lys Gln Met  Asp Tyr Pro Pro Pro
            9650              9655             9660

gcc atc caa tgt aat  gtt tta tgg att cgg  gat ggc gtc tct aat    105019
Ala Ile Gln Cys Asn  Val Leu Trp Ile Arg  Asp Gly Val Ser Asn
            9665              9670             9675

atg aaa tat tct gct  gtc gtt acc cct gac  gtc tat cca ttt ccc    105064
Met Lys Tyr Ser Ala  Val Val Thr Pro Asp  Val Tyr Pro Phe Pro
            9680              9685             9690

aac gtg tct ata ggt  att att gat gga cac  ata gta tgt acg gca    105109
Asn Val Ser Ile Gly  Ile Ile Asp Gly His  Ile Val Cys Thr Ala
            9695              9700             9705

aaa tgt gtg cca cgt  ggc gtt gta cat ttc  gta tgg tgg gtt aac    105154
Lys Cys Val Pro Arg  Gly Val Val His Phe  Val Trp Trp Val Asn
            9710              9715             9720

gat tct ccc att aac  cac gaa aac agt gag  att act ggg gtg tgt    105199
Asp Ser Pro Ile Asn  His Glu Asn Ser Glu  Ile Thr Gly Val Cys
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gat caa aac aaa cgg  ttt gta aac atg caa  agt tct tgt cca aca    105244
Asp Gln Asn Lys Arg  Phe Val Asn Met Gln  Ser Ser Cys Pro Thr
            9740              9745             9750

tcg gaa ctc gac gga  cct atc acc tat tcg  tgt cat cta gat ggt    105289
Ser Glu Leu Asp Gly  Pro Ile Thr Tyr Ser  Cys His Leu Asp Gly
            9755              9760             9765

tac cct aaa aaa ttc  cct ccg ttt tcg gcc  gtt tat acc tac gat    105334
Tyr Pro Lys Lys Phe  Pro Pro Phe Ser Ala  Val Tyr Thr Tyr Asp
            9770              9775             9780
```

```
gca tct acc tac gcc   act aca ttt tcc gtt   gta gca gtt ata att       105379
Ala Ser Thr Tyr Ala   Thr Thr Phe Ser Val   Val Ala Val Ile Ile
            9785                   9790                   9795

ggt gtg ata tct atc   ctt ggg aca ttg ggt   ctt atc gca gtt atc       105424
Gly Val Ile Ser Ile   Leu Gly Thr Leu Gly   Leu Ile Ala Val Ile
            9800                   9805                   9810

gca acc cta tgc atc   cgt tgc tgt tca taa acagaaacca accaaacgcg        105474
Ala Thr Leu Cys Ile   Arg Cys Cys Ser
            9815
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```
actgctgtct tcacaaaaaa ataaaatttg catcgttatt aat atg  aac gaa gcg   114229
                                             Met  Asn Glu Ala
                                              9820
```

```
gta att  gat ccc atc ttg gaa  acg gca gta aat aca  ggt gat atg    114274
Val Ile  Asp Pro Ile Leu Glu  Thr Ala Val Asn Thr  Gly Asp Met
 9825                9830                      9835
```

```
ttt tgt  agc caa act att ccg  aat cgg tgt tta aaa  gat aca att    114319
Phe Cys  Ser Gln Thr Ile Pro  Asn Arg Cys Leu Lys  Asp Thr Ile
 9840                9845                      9850
```

```
tta ata  gaa gtt caa cct gaa  tgt gca gat acg ctg  caa tgc gtg    114364
```

```
Leu Ile  Glu Val Gln Pro Glu  Cys Ala Asp Thr Leu  Gln Cys Val
    9855                9860                9865
```

```
tta gac gat aaa gta agt cga  cat caa ccg ttg tta  ctc cgg aac      114409
Leu Asp Asp Lys Val Ser Arg  His Gln Pro Leu Leu  Leu Arg Asn
    9870                9875                9880
```

```
cac aag aaa ctc gaa ctg cca  tct gaa aaa tct gta  aca cgg ggc      114454
His Lys Lys Leu Glu Leu Pro  Ser Glu Lys Ser Val  Thr Arg Gly
    9885                9890                9895
```

```
ggt ttt tat atg cag cag ttg  gag ctg ttg gtt aag  tcg gcg cct      114499
Gly Phe Tyr Met Gln Gln Leu  Glu Leu Leu Val Lys  Ser Ala Pro
    9900                9905                9910
```

```
ccc aat gaa tac gca ctg ttg  tta att caa tgc aaa  gat act gcc      114544
Pro Asn Glu Tyr Ala Leu Leu  Leu Ile Gln Cys Lys  Asp Thr Ala
    9915                9920                9925
```

```
ctt gct gat gaa gac aat ttt  ttt gtc gcc aac gga  gtt att gat      114589
Leu Ala Asp Glu Asp Asn Phe  Phe Val Ala Asn Gly  Val Ile Asp
    9930                9935                9940
```

```
gcg ggt tac aga gga gta att  tca gcc ctt ttg tat  tac cgg cca      114634
Ala Gly Tyr Arg Gly Val Ile  Ser Ala Leu Leu Tyr  Tyr Arg Pro
    9945                9950                9955
```

```
gga gta acc gtt att tta ccc  gga cat tta aca atc  tac ttg ttc      114679
Gly Val Thr Val Ile Leu Pro  Gly His Leu Thr Ile  Tyr Leu Phe
    9960                9965                9970
```

```
ccg gta aaa tta aga caa agt  cgc ctt ctc cca aaa  aac gtt ctt      114724
Pro Val Lys Leu Arg Gln Ser  Arg Leu Leu Pro Lys  Asn Val Leu
    9975                9980                9985
```

```
aaa cat ctg gat cca att ttt  aaa tcg ata caa gtt   caa ccc tta     114769
Lys His Leu Asp Pro Ile Phe  Lys Ser Ile Gln Val   Gln Pro Leu
    9990                9995                10000
```

```
tca aac  tcg ccg tca aat tat   gaa aaa ccc gtt ata   cct gaa ttt  114814
Ser Asn  Ser Pro Ser Asn Tyr   Glu Lys Pro Val Ile   Pro Glu Phe
    10005                10010                10015
```

```
gct gat  att tcc acg gta cag   cag ggg caa cct tta   cat agg gat  114859
Ala Asp  Ile Ser Thr Val Gln   Gln Gly Gln Pro Leu   His Arg Asp
    10020                10025                10030
```

```
tct gca  gaa tac cat atc gat   gtt ccc tta acc tac   aaa cat atc  114904
Ser Ala  Glu Tyr His Ile Asp   Val Pro Leu Thr Tyr   Lys His Ile
    10035                10040                10045
```

```
atc aat  cca aaa cgc caa gaa   gac gcg gga tat gat   att tgt gta  114949
Ile Asn  Pro Lys Arg Gln Glu   Asp Ala Gly Tyr Asp   Ile Cys Val
    10050                10055                10060
```

```
cca tat  aac cta tat tta aaa   agg aat gaa ttt ata   aaa att gtc  114994
Pro Tyr  Asn Leu Tyr Leu Lys   Arg Asn Glu Phe Ile   Lys Ile Val
    10065                10070                10075
```

```
tta ccg  att ata aga gac tgg   gac tta caa cat ccg   agt ata aac  115039
Leu Pro  Ile Ile Arg Asp Trp   Asp Leu Gln His Pro   Ser Ile Asn
    10080                10085                10090
```

```
gct tat   att ttt gga aga tca   tcg aaa agc cga tca   ggc att atc 115084
Ala Tyr   Ile Phe Gly Arg Ser   Ser Lys Ser Arg Ser   Gly Ile Ile
    10095                 10100                 10105

gtg tgt   cca acg gca tgg cct   gca gga gaa cac tgt   aaa ttc tac 115129
Val Cys   Pro Thr Ala Trp Pro   Ala Gly Glu His Cys   Lys Phe Tyr
    10110                 10115                 10120

gta tat   aat ctc acg ggt gat   gac ata cgt ata aaa   acg gga gat 115174
Val Tyr   Asn Leu Thr Gly Asp   Asp Ile Arg Ile Lys   Thr Gly Asp
    10125                 10130                 10135

cgt ctt   gca cag gtc ctg tta   ata gat cac aac acc   caa ata cac 115219
Arg Leu   Ala Gln Val Leu Leu   Ile Asp His Asn Thr   Gln Ile His
    10140                 10145                 10150

tta aaa   cac aac gtt tta agt   aat att gca ttt cct   tat gct atc 115264
Leu Lys   His Asn Val Leu Ser   Asn Ile Ala Phe Pro   Tyr Ala Ile
    10155                 10160                 10165

cgc ggt   aaa tgt ggc ata ccg   ggt gta caa tgg tat   ttt act aaa 115309
Arg Gly   Lys Cys Gly Ile Pro   Gly Val Gln Trp Tyr   Phe Thr Lys
    10170                 10175                 10180

acg tta   gat cta ata gcc aca   ccc agc gaa cgg gga   acg cgt gga 115354
Thr Leu   Asp Leu Ile Ala Thr   Pro Ser Glu Arg Gly   Thr Arg Gly
    10185                 10190                 10195

ttt ggt   tca act gat aaa gaa   aca aac gat gtc gat   ttt cta cta 115399
Phe Gly   Ser Thr Asp Lys Glu   Thr Asn Asp Val Asp   Phe Leu Leu
    10200                 10205                 10210

aaa cat   taa atgtaataac cacgccagcc agcaatgttt taattttata        115448
Lys His
    10215
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tacaaaataa aaacatacac cagaaacgtt tttagttttt atttcaatat ttatacaagc 115508

ataacatggg atttcttgat cgcggggggtt gtgcgttgta catcttgcgt ctgttttggg 115568

gtcaacacgg gctgaagagt ttctgtcgga tacgtttttt ttgttaggtt agatgtgtta 115628

ttatccgata cttctataag tgggggttta atttcagata attgtgtcgc ctccgatttta 115688

ataggtgatg ttttttaaacc cacattttcc cctttagcta tagataattc atggttgtgg 115748

gaaacatcaa acgatgcctg aggtttagca acgaccccaa gagttttctc caaaagaaca 115808

acatcagaca tgaccacttc actttcagcg gtcattctca gggtttgatc gacaatatca 115868

tccgtagtaa catccaccgc gccaaccgat aaatacaaat gggtaattgc agctaaacac 115928

atatcagcaa gccgttttga gttttccatg tgtgaacgga ccacggcgtt aagaccgggg 115988

ttatcttcag taaaatggtg ctgtttttaaa cattcaatgt tacgagaaca tgcagcgtaa 116048

gttcgcgcca aagcctgggc gcggaccaaa cgacgggtat tatctgcaga agcgactacg 116108

tcttctaacg ttagaggtgc aggcaataat ccattcacag cggttaaagc ctcttggagg 116168

cggagcaggg cggctccttg ggggtgcgtg tttacacgca cctcttcata agatggctct 116228

tcagttggta ttcgagcata tccacataag ctggcacaca ccgtctgcat gattgactgg 116288
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ctttccaacg tattgaact atg gat aaa tcc tcc    aaa ccg acg att cgg    116337
                       Met Asp Lys Ser Ser  Lys Pro Thr Ile Arg
                                        10220                 10225

tta tta ttt gcc aca    aag gga tgt gca atc    tcc cac tcg ctg ttg    116382
Leu Leu Phe Ala Thr    Lys Gly Cys Ala Ile    Ser His Ser Leu Leu
            10230                   10235                 10240

ttg ctt acc ggg cag    ata agc aca gaa cct    ctg tat gtg gtg agt    116427
Leu Leu Thr Gly Gln    Ile Ser Thr Glu Pro    Leu Tyr Val Val Ser
            10245                   10250                 10255

tat act tgg act ccc    gac tta gat gac gtc    ttt gtc aaa aat ggg    116472
Tyr Thr Trp Thr Pro    Asp Leu Asp Asp Val    Phe Val Lys Asn Gly
            10260                   10265                 10270

agg gaa gag atc acg    caa gta atc cca act    aaa cgc cca cgt gaa    116517
Arg Glu Glu Ile Thr    Gln Val Ile Pro Thr    Lys Arg Pro Arg Glu
            10275                   10280                 10285

gta act gaa aac gat    gaa gaa aac caa ata    atg cat tta ttt tgt    116562
Val Thr Glu Asn Asp    Glu Glu Asn Gln Ile    Met His Leu Phe Cys
            10290                   10295                 10300

agt agg gac gtc aac    gtt att ttt tat tta    att ggt gga ttt tca    116607
Ser Arg Asp Val Asn    Val Ile Phe Tyr Leu    Ile Gly Gly Phe Ser
            10305                   10310                 10315

act gga gat gta cga    tcc cgg gtc tgg cct    ata ttt ttt tgt tgt    116652
Thr Gly Asp Val Arg    Ser Arg Val Trp Pro    Ile Phe Phe Cys Cys
            10320                   10325                 10330

ttt aaa acc caa act    gat ttt aaa gct tta    tat aag gcg tta tgg    116697
Phe Lys Thr Gln Thr    Asp Phe Lys Ala Leu    Tyr Lys Ala Leu Trp
            10335                   10340                 10345

tat gga gca ccc cta    aat ccg cat ata ata    tct gat acc cta tgt    116742
Tyr Gly Ala Pro Leu    Asn Pro His Ile Ile    Ser Asp Thr Leu Cys
            10350                   10355                 10360

ata tcg gag acg ttt    gac att cac tcg gaa    gtt ata caa act ctg    116787
Ile Ser Glu Thr Phe    Asp Ile His Ser Glu    Val Ile Gln Thr Leu
            10365                   10370                 10375

atg gta aca aca cac    cat tta aac cga aag    gga tta tcg gac aac    116832
Met Val Thr Thr His    His Leu Asn Arg Lys    Gly Leu Ser Asp Asn
            10380                   10385                 10390

ggc cta tgc atc aca    gag gca aca ctc tgc    aag tta gtt aaa aaa    116877
Gly Leu Cys Ile Thr    Glu Ala Thr Leu Cys    Lys Leu Val Lys Lys
            10395                   10400                 10405

tcc gtt ggt cgt cag    gag cta aca tca tta    tat gcc cat tac gaa    116922
Ser Val Gly Arg Gln    Glu Leu Thr Ser Leu    Tyr Ala His Tyr Glu
            10410                   10415                 10420

cgt caa gta ttg gct    gca tat cga cga ctc    tac tgg ggg tat gga    116967
Arg Gln Val Leu Ala    Ala Tyr Arg Arg Leu    Tyr Trp Gly Tyr Gly
            10425                   10430                 10435

tgc tcg ccg ttt tgg    tat att gtt cga ttt    gga ccc tct gaa aaa    117012
Cys Ser Pro Phe Trp    Tyr Ile Val Arg Phe    Gly Pro Ser Glu Lys
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                    10440                        10445                        10450

acg cta gtg ttg gct   aca cgc tat tac ttg   tta caa acg gac aca   117057
Thr Leu Val Leu Ala   Thr Arg Tyr Tyr Leu   Leu Gln Thr Asp Thr
                10455                  10460                  10465

agt tac aat acg ttg   gaa acc ccc tta tat   gac tta cag gca att   117102
Ser Tyr Asn Thr Leu   Glu Thr Pro Leu Tyr   Asp Leu Gln Ala Ile
                10470                  10475                  10480

aaa gat ttg ttt tta   act tac caa gtc ccg   gca tta cct aat tgt   117147
Lys Asp Leu Phe Leu   Thr Tyr Gln Val Pro   Ala Leu Pro Asn Cys
                10485                  10490                  10495

agt ggg tac aat att   tcg gac ttg ttg tct   ttt gat aaa ctt tcc   117192
Ser Gly Tyr Asn Ile   Ser Asp Leu Leu Ser   Phe Asp Lys Leu Ser
                10500                  10505                  10510

atg ttt tgt tgt tcc   tca aca tat aca cga   ggt ttg aca gcc aaa   117237
Met Phe Cys Cys Ser   Ser Thr Tyr Thr Arg   Gly Leu Thr Ala Lys
                10515                  10520                  10525

aat gct cta tcg tac   att tta cag cga ata   cat aca gac aca acg   117282
Asn Ala Leu Ser Tyr   Ile Leu Gln Arg Ile   His Thr Asp Thr Thr
                10530                  10535                  10540

gaa ata cac gca gta   tcg gag tat att acc   aac gat aga aaa ggc   117327
Glu Ile His Ala Val   Ser Glu Tyr Ile Thr   Asn Asp Arg Lys Gly
                10545                  10550                  10555

ctt aaa gtt cca gac   cgt gaa ttt gtt gat   tat att tat ctg gca   117372
Leu Lys Val Pro Asp   Arg Glu Phe Val Asp   Tyr Ile Tyr Leu Ala
                10560                  10565                  10570

cat ttt gaa tgt ttc   aat cgg aaa cag atc   gca gac cac cta caa   117417
His Phe Glu Cys Phe   Asn Arg Lys Gln Ile   Ala Asp His Leu Gln
                10575                  10580                  10585

gcg gtt aca tac tca   gat ttt gtg aat aaa   ccg gtc ctc tta aaa   117462
Ala Val Thr Tyr Ser   Asp Phe Val Asn Lys   Pro Val Leu Leu Lys
                10590                  10595                  10600

tca tcc aac ctg gga   aaa aga gct act gct   aat ttt ttt aat cat   117507
Ser Ser Asn Leu Gly   Lys Arg Ala Thr Ala   Asn Phe Phe Asn His
                10605                  10610                  10615

gta cgt tct cgt ctc   aac atg cgt gac tat   ata aaa aag aac gta   117552
Val Arg Ser Arg Leu   Asn Met Arg Asp Tyr   Ile Lys Lys Asn Val
                10620                  10625                  10630

att tgt gat gtc act   gaa ctt gga cct gag   att gga cat aaa tat   117597
Ile Cys Asp Val Thr   Glu Leu Gly Pro Glu   Ile Gly His Lys Tyr
                10635                  10640                  10645

aca att act aaa aca   tat act tta agt ctt   acg tat gcc gca aaa   117642
Thr Ile Thr Lys Thr   Tyr Thr Leu Ser Leu   Thr Tyr Ala Ala Lys
                10650                  10655                  10660

cct agc aag ttt ata   ggc gta tgt gac cta   gct aca acg cta act   117687
Pro Ser Lys Phe Ile   Gly Val Cys Asp Leu   Ala Thr Thr Leu Thr
                10665                  10670                  10675

cgt cgt gtg gaa aac   att gaa aaa caa ttt   agt cca tat gga tgg   117732
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Arg Arg Val Glu Asn   Ile Glu Lys Gln Phe   Ser Pro Tyr Gly Trp
              10680                  10685                  10690

tcc tcc act att ccc   tca aat cca ccc ggt   ttt gac gaa ttg tct   117777
Ser Ser Thr Ile Pro   Ser Asn Pro Pro Gly   Phe Asp Glu Leu Ser
              10695                  10700                  10705

aat ttt gag gat tcg   ggt gtt tcc gcg gag   gcg tta cga gca gcc   117822
Asn Phe Glu Asp Ser   Gly Val Ser Ala Glu   Ala Leu Arg Ala Ala
              10710                  10715                  10720

aac ttt gca aac gat   aca cct aac caa agt   ggt cgt act ggt ttt   117867
Asn Phe Ala Asn Asp   Thr Pro Asn Gln Ser   Gly Arg Thr Gly Phe
              10725                  10730                  10735

gat acg agc ccg ggg   att aca aaa cta tta   ctg ttt ttc tct gct   117912
Asp Thr Ser Pro Gly   Ile Thr Lys Leu Leu   Leu Phe Phe Ser Ala
              10740                  10745                  10750

gcc act ggg ata gcc   aca cat gat gta tcc   atc ctg agt tat aaa   117957
Ala Thr Gly Ile Ala   Thr His Asp Val Ser   Ile Leu Ser Tyr Lys
              10755                  10760                  10765

act cca tta gaa gcc   ctc atc ggc cat tct   gag gta act gga cca   118002
Thr Pro Leu Glu Ala   Leu Ile Gly His Ser   Glu Val Thr Gly Pro
              10770                  10775                  10780

atg cct gta tat cgg   gta gcc ttg cct cac   ggc gcc caa gca ttt   118047
Met Pro Val Tyr Arg   Val Ala Leu Pro His   Gly Ala Gln Ala Phe
              10785                  10790                  10795

gct gtt att gct aat   gat acg tgg tca tca   ata aca aac cgt tac   118092
Ala Val Ile Ala Asn   Asp Thr Trp Ser Ser   Ile Thr Asn Arg Tyr
              10800                  10805                  10810

act tta ccg cac gag   gct cga tta att gcg   gag gac ctt aaa caa   118137
Thr Leu Pro His Glu   Ala Arg Leu Ile Ala   Glu Asp Leu Lys Gln
              10815                  10820                  10825

att aat cca tgt aat   ttt gtt gcc gct tca   cta cga gat atg cag   118182
Ile Asn Pro Cys Asn   Phe Val Ala Ala Ser   Leu Arg Asp Met Gln
              10830                  10835                  10840

ttg act tta cta tta   tct acg tct gtt aaa   aac gtt tct aaa att   118227
Leu Thr Leu Leu Leu   Ser Thr Ser Val Lys   Asn Val Ser Lys Ile
              10845                  10850                  10855

tca tca aac ata ccc   aaa gat cag ctt tat   ata aac agg aat gag   118272
Ser Ser Asn Ile Pro   Lys Asp Gln Leu Tyr   Ile Asn Arg Asn Glu
              10860                  10865                  10870

cta ttt aat aca aat   ctt ata atc aca aac   ctc ata ctt gat gta   118317
Leu Phe Asn Thr Asn   Leu Ile Ile Thr Asn   Leu Ile Leu Asp Val
              10875                  10880                  10885

gac ttt cat ata aga   aaa ccc atc cca ttg   ggt att tta cat gcc   118362
Asp Phe His Ile Arg   Lys Pro Ile Pro Leu   Gly Ile Leu His Ala
              10890                  10895                  10900

ggc atg cga gca ttt   cgt cat ggt att tta   acg gcc atg caa tta   118407
Gly Met Arg Ala Phe   Arg His Gly Ile Leu   Thr Ala Met Gln Leu
              10905                  10910                  10915
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ctt ttt cca aag gcc   gtg gta aac cct aac   aaa gac cca tgt tat     118452
Leu Phe Pro Lys Ala   Val Val Asn Pro Asn   Lys Asp Pro Cys Tyr
            10920                10925                10930

ttt tat aaa act gca   tgt cct gaa cct acc   gtt gag gtg ttg gat     118497
Phe Tyr Lys Thr Ala   Cys Pro Glu Pro Thr   Val Glu Val Leu Asp
            10935                10940                10945

gat gat aat tta ttg   gat ata acc agc cat   tct gac atc gat ttt     118542
Asp Asp Asn Leu Leu   Asp Ile Thr Ser His   Ser Asp Ile Asp Phe
            10950                10955                10960

tac ata gaa aat ggc   gaa tta tac acg tgt   gta gaa gag aat tat     118587
Tyr Ile Glu Asn Gly   Glu Leu Tyr Thr Cys   Val Glu Glu Asn Tyr
            10965                10970                10975

aca gag gat gta tgg   ttt ttt gat aca cag   aca acg tct gaa gtc     118632
Thr Glu Asp Val Trp   Phe Phe Asp Thr Gln   Thr Thr Ser Glu Val
            10980                10985                10990

cat aca cac gcc gat   gta tca aac aat gaa   aac ttg cat gaa act     118677
His Thr His Ala Asp   Val Ser Asn Asn Glu   Asn Leu His Glu Thr
            10995                11000                11005

cta ccc tgt aac tgt   aaa gag aaa ata ggt   ttc agg gta tgc gta     118722
Leu Pro Cys Asn Cys   Lys Glu Lys Ile Gly   Phe Arg Val Cys Val
            11010                11015                11020

cca atc cca aat ccc   tat gcg tta gtg ggg   tct tcc act tta aag     118767
Pro Ile Pro Asn Pro   Tyr Ala Leu Val Gly   Ser Ser Thr Leu Lys
            11025                11030                11035

ggg ttt gca caa ata   tta cag caa gcg gtg   ttg ctg gaa cgg gaa     118812
Gly Phe Ala Gln Ile   Leu Gln Gln Ala Val   Leu Leu Glu Arg Glu
            11040                11045                11050

ttt gtt gaa tat att   ggt ccg tat tta cgg   gac ttt tcg ttt ata     118857
Phe Val Glu Tyr Ile   Gly Pro Tyr Leu Arg   Asp Phe Ser Phe Ile
            11055                11060                11065

gat act ggt gtt tat   agc cac gga cat agt   tta aga ctg cct ttt     118902
Asp Thr Gly Val Tyr   Ser His Gly His Ser   Leu Arg Leu Pro Phe
            11070                11075                11080

ttc tcc aaa gta aca   acc aca ggg acg gcg   gtt gga caa cta ctc     118947
Phe Ser Lys Val Thr   Thr Thr Gly Thr Ala   Val Gly Gln Leu Leu
            11085                11090                11095

cca ttt tat gtt gta   cct gag cag tgt att   gat ata tta gcg ttt     118992
Pro Phe Tyr Val Val   Pro Glu Gln Cys Ile   Asp Ile Leu Ala Phe
            11100                11105                11110

gtg aca tca cat aga   aac ccg gca aac ttt   cat ttt cat tca aga     119037
Val Thr Ser His Arg   Asn Pro Ala Asn Phe   His Phe His Ser Arg
            11115                11120                11125

ccg cag tcg aat gtt   cca gtg caa ttt att   tta cat aac ctt ggg     119082
Pro Gln Ser Asn Val   Pro Val Gln Phe Ile   Leu His Asn Leu Gly
            11130                11135                11140

ggg gaa tac gca gag   ttt ttt gaa cgt aag   gtt gcg cgt aat aaa     119127
Gly Glu Tyr Ala Glu   Phe Phe Glu Arg Lys   Val Ala Arg Asn Lys
            11145                11150                11155
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caa ata ttt agc tcc   ccg caa ata tct tta   aca aag gct cta aaa   119172
Gln Ile Phe Ser Ser   Pro Gln Ile Ser Leu   Thr Lys Ala Leu Lys
            11160                  11165                  11170

gag cgc ggg gta act   tgt ctg gac gca ttt   aca ctg gag gcc ttt   119217
Glu Arg Gly Val Thr   Cys Leu Asp Ala Phe   Thr Leu Glu Ala Phe
            11175                  11180                  11185

gtc gac agc aca ata   tta gaa tct att gtg   gag cat att gct gtt   119262
Val Asp Ser Thr Ile   Leu Glu Ser Ile Val   Glu His Ile Ala Val
            11190                  11195                  11200

cat ttc ccc ggg cgt   gat cgc gaa tat acc   tta aca tca tca aag   119307
His Phe Pro Gly Arg   Asp Arg Glu Tyr Thr   Leu Thr Ser Ser Lys
            11205                  11210                  11215

tgt atc gcc atc aaa   agg gac tgg gtg tta   ttt cag ctc ata tgc   119352
Cys Ile Ala Ile Lys   Arg Asp Trp Val Leu   Phe Gln Leu Ile Cys
            11220                  11225                  11230

gga aca aaa ggg ttc   act tgt ctt cga tat   ccc cat cgc gga gga   119397
Gly Thr Lys Gly Phe   Thr Cys Leu Arg Tyr   Pro His Arg Gly Gly
            11235                  11240                  11245

aga acg gct ccc cgg   aca ttt gtg tct ctg   cga gtg gat cat cac   119442
Arg Thr Ala Pro Arg   Thr Phe Val Ser Leu   Arg Val Asp His His
            11250                  11255                  11260

aac cgt ttg tgt att   tcg ctt gca caa caa   tgt ttt gct aca aag   119487
Asn Arg Leu Cys Ile   Ser Leu Ala Gln Gln   Cys Phe Ala Thr Lys
            11265                  11270                  11275

tgc gat agc aat cgc   atg cat aca atc ttt   act cta gaa gta cct   119532
Cys Asp Ser Asn Arg   Met His Thr Ile Phe   Thr Leu Glu Val Pro
            11280                  11285                  11290

aat tat cca aat tta   act tcg agt taa caccaaccgt gtgatactac       119579
Asn Tyr Pro Asn Leu   Thr Ser Ser
            11295

atcgtgcttg aattgccatc ttccacgggt c atg cag   gct tta gga atc       119628
                                    Met Gln   Ala Leu Gly Ile
                                        11300

aag     aca gaa cat ttt ata   att atg tgt cta ctt   agc gga cat gct 119673
Lys     Thr Glu His Phe Ile   Ile Met Cys Leu Leu   Ser Gly His Ala
11305                   11310                  11315

gtt     ttt acc cta tgg tat   acc gct cgt gta aag   ttt gaa cat gag 119718
Val     Phe Thr Leu Trp Tyr   Thr Ala Arg Val Lys   Phe Glu His Glu
11320                   11325                  11330

tgt     gtg tat gca acc acg   gtg att aat ggt gga   ccg gtt gta tgg 119763
Cys     Val Tyr Ala Thr Thr   Val Ile Asn Gly Gly   Pro Val Val Trp
11335                   11340                  11345

ggg     tct tat aac aac tct   ctt ata tat gta acg   ttt gta aac cac 119808
Gly     Ser Tyr Asn Asn Ser   Leu Ile Tyr Val Thr   Phe Val Asn His
11350                   11355                  11360

tca     acg ttt ttg gat ggc   cta tct gga tac gat   tac agc tgc cgg 119853
Ser     Thr Phe Leu Asp Gly   Leu Ser Gly Tyr Asp   Tyr Ser Cys Arg
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11365   11370   11375

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gaa   aat cta tta tca gga   gat act atg gta aaa   acc gct att tct 119898
Glu   Asn Leu Leu Ser Gly   Asp Thr Met Val Lys   Thr Ala Ile Ser
11380                 11385                 11390

aca   cct ttg cat gac aaa   att cga att gtt ctg   gga aca cgt aat 119943
Thr   Pro Leu His Asp Lys   Ile Arg Ile Val Leu   Gly Thr Arg Asn
11395                 11400                 11405

tgt   cac gct tat ttt tgg   tgc gtg cag cta aaa   atg att ttt ttt 119988
Cys   His Ala Tyr Phe Trp   Cys Val Gln Leu Lys   Met Ile Phe Phe
11410                 11415                 11420

gca   tgg ttt gta tat ggt   atg tat tta caa ttt   cga cga ata cgt 120033
Ala   Trp Phe Val Tyr Gly   Met Tyr Leu Gln Phe   Arg Arg Ile Arg
11425                 11430                 11435

cgt   atg ttt ggg cca ttc   cga tca tcc tgt gag   tta ata tcc ccc 120078
Arg   Met Phe Gly Pro Phe   Arg Ser Ser Cys Glu   Leu Ile Ser Pro
11440                 11445                 11450

aca   tca tat tca ctg aat   tac gta aca cgg gtt   att tcg aac att 120123
Thr   Ser Tyr Ser Leu Asn   Tyr Val Thr Arg Val   Ile Ser Asn Ile
11455                 11460                 11465

ctt   ctt ggt tac cca tat   aca aag ttg gca agg   ttg tta tgt gat 120168
Leu   Leu Gly Tyr Pro Tyr   Thr Lys Leu Ala Arg   Leu Leu Cys Asp
11470                 11475                 11480

gtt   tcc atg cga cgg gat   ggt atg agt aaa gta   ttt aat gct gac 120213
Val   Ser Met Arg Arg Asp   Gly Met Ser Lys Val   Phe Asn Ala Asp
11485                 11490                 11495

cct   ata agt ttt tta tat   atg cat aaa ggt gtt   acg tta ttg atg 120258
Pro   Ile Ser Phe Leu Tyr   Met His Lys Gly Val   Thr Leu Leu Met
11500                 11505                 11510

ctt   ttg gag gtt atc gct   cat ata tca tct gga   tgt att gtg ctt 120303
Leu   Leu Glu Val Ile Ala   His Ile Ser Ser Gly   Cys Ile Val Leu
11515                 11520                 11525

tta   acg ctt ggc gtt gca   tat aca cca tgc gcg   tta tta tac ccc 120348
Leu   Thr Leu Gly Val Ala   Tyr Thr Pro Cys Ala   Leu Leu Tyr Pro
11530                 11535                 11540

aca   tac att cgg att ctg   gcc tgg gtt gtt gta   tgc acg ctc gct 120393
Thr   Tyr Ile Arg Ile Leu   Ala Trp Val Val Val   Cys Thr Leu Ala
11545                 11550                 11555

ata   gta gag ctt ata tct   tat gtt aga cca aaa   cca acc aag gat 120438
Ile   Val Glu Leu Ile Ser   Tyr Val Arg Pro Lys   Pro Thr Lys Asp
11560                 11565                 11570

aat   cat tta aat cat atc   aat acg ggg gga ata   cgt ggt ata tgc 120483
Asn   His Leu Asn His Ile   Asn Thr Gly Gly Ile   Arg Gly Ile Cys
11575                 11580                 11585

aca   aca tgt tgc gct aca   gta atg tcc ggc ctt   gct ata aaa tgt 120528
Thr   Thr Cys Cys Ala Thr   Val Met Ser Gly Leu   Ala Ile Lys Cys
11590                 11595                 11600

ttt   tat atc gtc ata ttt   gct ata gca gtg gtt   att ttt atg cat 120573
```

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Phe     Tyr Ile Val Ile Phe     Ala Ile Ala Val Val     Ile Phe Met His
11605                   11610                 11615
```

```
tac     gaa caa agg gtg cag     gta agc ttg ttt ggg     gaa agt gaa aac   120618
Tyr     Glu Gln Arg Val Gln     Val Ser Leu Phe Gly     Glu Ser Glu Asn
11620                   11625                 11630
```

```
tcc     cag aag cat taa tcatgtgact aaacacgccc attgcggggt tgggtgagcc   120673
Ser     Gln Lys His
11635
```

```
tataaattct acaacattgg cggaagatac aggcaactgc aaacacgcaa ttgtcagata   120733
```

```
ttttgcagcc atg gcc     tct gct tca att cca     acc gac cca gac gtg          120779
         Met Ala     Ser Ala Ser Ile Pro     Thr Asp Pro Asp Val
         11640                   11645                 11650
```

```
tct act att tgt gaa     gac ttt atg aat ttg     cta cca gac gaa cct   120824
Ser Thr Ile Cys Glu     Asp Phe Met Asn Leu     Leu Pro Asp Glu Pro
            11655                   11660                 11665
```

```
tcg gat gac ttt gca     ttg gaa gtc acc gat     tgg gca aat gat gaa   120869
Ser Asp Asp Phe Ala     Leu Glu Val Thr Asp     Trp Ala Asn Asp Glu
            11670                   11675                 11680
```

```
gct att ggc tcc act     cca ggc gag gac tcc     aca acg tct aga act   120914
Ala Ile Gly Ser Thr     Pro Gly Glu Asp Ser     Thr Thr Ser Arg Thr
            11685                   11690                 11695
```

```
gtg tat gtg gag cgt     act gca gat aca gca     tat aat cca cgg tat   120959
Val Tyr Val Glu Arg     Thr Ala Asp Thr Ala     Tyr Asn Pro Arg Tyr
            11700                   11705                 11710
```

```
tcc aaa cga agg cac     gga agg cgt gaa agc     tac cac cac aat cgc   121004
Ser Lys Arg Arg His     Gly Arg Arg Glu Ser     Tyr His His Asn Arg
            11715                   11720                 11725
```

```
ccg aaa act ttg gtt     gtt gta tta ccc gat     tca aac cat cat gga   121049
Pro Lys Thr Leu Val     Val Val Leu Pro Asp     Ser Asn His His Gly
            11730                   11735                 11740
```

```
gga aga gac gtg gag     act gga tat gca cgc     atc gaa cgg gga cat   121094
Gly Arg Asp Val Glu     Thr Gly Tyr Ala Arg     Ile Glu Arg Gly His
            11745                   11750                 11755
```

```
cga cga tca tcc aga     tct tat aac act caa     agt tca aga aaa cac   121139
Arg Arg Ser Ser Arg     Ser Tyr Asn Thr Gln     Ser Ser Arg Lys His
            11760                   11765                 11770
```

```
cgt gat cga tcc ctg     tca aat cga aga cgg     cgt cct aca acg cct   121184
Arg Asp Arg Ser Leu     Ser Asn Arg Arg Arg     Arg Pro Thr Thr Pro
            11775                   11780                 11785
```

```
cct gca atg acc acg     gga gaa aga aat gat     cag aca cat gac gaa   121229
Pro Ala Met Thr Thr     Gly Glu Arg Asn Asp     Gln Thr His Asp Glu
            11790                   11795                 11800
```

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tcg tac agg ttg cga     ttt tcc aag aga gac     gcc cgc cga gag cgt   121274
Ser Tyr Arg Leu Arg     Phe Ser Lys Arg Asp     Ala Arg Arg Glu Arg
            11805                   11810                 11815
```

```
att cga aaa gag tat     gat atc ccg gtc gat     cga att acg ggc cgt   121319
Ile Arg Lys Glu Tyr     Asp Ile Pro Val Asp     Arg Ile Thr Gly Arg
```

```
                      11820                      11825                          11830
gct att gaa gtc gtc   tcc acc gcg gga gcc   agc gtg acc att gac   121364
Ala Ile Glu Val Val   Ser Thr Ala Gly Ala   Ser Val Thr Ile Asp
                11835                   11840                      11845

tcg gta cgc cat tta   gat gaa aca att gaa   aaa ctg gta gtc cga   121409
Ser Val Arg His Leu   Asp Glu Thr Ile Glu   Lys Leu Val Val Arg
                11850                   11855                      11860

tat gcc aca ata caa   gag ggt gat tca tgg   gct tcc ggt gga tgt   121454
Tyr Ala Thr Ile Gln   Glu Gly Asp Ser Trp   Ala Ser Gly Gly Cys
                11865                   11870                      11875

ttt ccg ggg ata aaa   caa aac aca tct tgg   ccg gag ttg atg ttg   121499
Phe Pro Gly Ile Lys   Gln Asn Thr Ser Trp   Pro Glu Leu Met Leu
                11880                   11885                      11890

tac gga cat gaa ctt   tat cgt acc ttt gag   tca tat aaa atg gac   121544
Tyr Gly His Glu Leu   Tyr Arg Thr Phe Glu   Ser Tyr Lys Met Asp
                11895                   11900                      11905

tca cgt att gcc cgc   gcg ttg cgt gag aga   gtc ata cgt gga gaa   121589
Ser Arg Ile Ala Arg   Ala Leu Arg Glu Arg   Val Ile Arg Gly Glu
                11910                   11915                      11920

tct ttg att gaa gcg   ttg gag tct gcg gat   gaa ctg tta acg tgg   121634
Ser Leu Ile Glu Ala   Leu Glu Ser Ala Asp   Glu Leu Leu Thr Trp
                11925                   11930                      11935

att aaa atg tta gcg   gca aaa aac ttg ccc   atc tac aca aat aat   121679
Ile Lys Met Leu Ala   Ala Lys Asn Leu Pro   Ile Tyr Thr Asn Asn
                11940                   11945                      11950

ccc att gtt gca acc   tcg aag tca ctt ttg   gag aat tta aag tta   121724
Pro Ile Val Ala Thr   Ser Lys Ser Leu Leu   Glu Asn Leu Lys Leu
                11955                   11960                      11965

aag ctg ggg cct ttt   gta aga tgt ctt ctt   cta aac agg gac aac   121769
Lys Leu Gly Pro Phe   Val Arg Cys Leu Leu   Leu Asn Arg Asp Asn
                11970                   11975                      11980

gat ttg ggg tct cgt   act ctc ccc gaa ctg   ttg cgc cag caa cgt   121814
Asp Leu Gly Ser Arg   Thr Leu Pro Glu Leu   Leu Arg Gln Gln Arg
                11985                   11990                      11995

ttt agt gat atc acg   tgt att act act tat   atg ttt gtt atg att   121859
Phe Ser Asp Ile Thr   Cys Ile Thr Thr Tyr   Met Phe Val Met Ile
                12000                   12005                      12010

gcc cgc att gct aat   ata gtt gtc cgt ggc   tct aaa ttt gtg gaa   121904
Ala Arg Ile Ala Asn   Ile Val Val Arg Gly   Ser Lys Phe Val Glu
                12015                   12020                      12025

tat gat gat atc agt   tgt aac gtt caa gtg   tta caa gaa tat aca   121949
Tyr Asp Asp Ile Ser   Cys Asn Val Gln Val   Leu Gln Glu Tyr Thr
                12030                   12035                      12040

ccc ggg tca tgt ctg   gcc ggt gtt tta gag   gcc cta atc acc cac   121994
Pro Gly Ser Cys Leu   Ala Gly Val Leu Glu   Ala Leu Ile Thr His
                12045                   12050                      12055

caa cgc gag tgt ggt   cgt gtt gaa tgt acc   ctc tca act tgg gcc   122039
```

```
Gln Arg Glu Cys Gly   Arg Val Glu Cys Thr   Leu Ser Thr Trp Ala
            12060                 12065                 12070

ggg cat ctt tct gac   gcc cgt cca tac ggt   aaa tat ttt aag tgt   122084
Gly His Leu Ser Asp   Ala Arg Pro Tyr Gly   Lys Tyr Phe Lys Cys
            12075                 12080                 12085

agt acc ttt aac tgc   taa aataaaaat acctttttca tgcttgtcaa         122132
Ser Thr Phe Asn Cys
            12090

aacatactaa tttgtatttt taatcattaa gcatatttac ctgttagaat agtaaatacc 122192

tatttcatgc ttgtaaaaca tatcaattta tatttttaat cattatacac cacccccttga 122252

ttttatcaat tgtttatgtg attctatatt aataaaagac taataaaaat gtaatattgt 122312

gggagttttt aaggcgacgt tggggatata tgggcgggat tacattgctt tcaaaccaat 122372

atctttgcaa ttccgtctct gattcgggta aaacacacac cagacgtgta ccgaacgttt 122432

aatta atg gat aca acg gga   gct tcc gaa agc agt   caa ccc atc cga   122479
      Met Asp Thr Thr Gly   Ala Ser Glu Ser Ser   Gln Pro Ile Arg
                12095                 12100

gtg   aat ctt aaa cct gac   ccg ttg gcg tcg ttt   aca caa gtt ata   122524
Val   Asn Leu Lys Pro Asp   Pro Leu Ala Ser Phe   Thr Gln Val Ile
12105                 12110                 12115

ccg   cca ctg gcg ttg gaa   aca acg tgg aca tgc   cct gcc aac tca   122569
Pro   Pro Leu Ala Leu Glu   Thr Thr Trp Thr Cys   Pro Ala Asn Ser
12120                 12125                 12130

cat   gca ccg acg cca tcc   cct ctg tac ggt gtt   aag agg tta tgt   122614
His   Ala Pro Thr Pro Ser   Pro Leu Tyr Gly Val   Lys Arg Leu Cys
12135                 12140                 12145

gct   ctt cga gca aca tgc   ggc cgg gct gat gat   tta cac gct ttt   122659
Ala   Leu Arg Ala Thr Cys   Gly Arg Ala Asp Asp   Leu His Ala Phe
12150                 12155                 12160

ttg   att gga ctt gga cgt   cga gat aaa cca tct   gaa tcc cca atg   122704
Leu   Ile Gly Leu Gly Arg   Arg Asp Lys Pro Ser   Glu Ser Pro Met
12165                 12170                 12175

tat   gtt gac cta cag ccg   ttt tgc agc ctc cta   aat tcc caa cga   122749
Tyr   Val Asp Leu Gln Pro   Phe Cys Ser Leu Leu   Asn Ser Gln Arg
12180                 12185                 12190

ctg   tta ccg gaa atg gct   aat tat aac acc cta   tgc gat gca ccc   122794
Leu   Leu Pro Glu Met Ala   Asn Tyr Asn Thr Leu   Cys Asp Ala Pro
12195                 12200                 12205

ttc   agc gcc gca act cag   cag atg atg ctg gag   tcc gga cag ctg   122839
Phe   Ser Ala Ala Thr Gln   Gln Met Met Leu Glu   Ser Gly Gln Leu
12210                 12215                 12220

ggt   gta cat ctg gcg gct   att ggg tat cac tgt   cat tgt aaa tcc   122884
Gly   Val His Leu Ala Ala   Ile Gly Tyr His Cys   His Cys Lys Ser
12225                 12230                 12235

ccc   ttc tcg gcg gag tgt   tgg acc ggt gca tcc   gag gca tac gat   122929
Pro   Phe Ser Ala Glu Cys   Trp Thr Gly Ala Ser   Glu Ala Tyr Asp
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12240   12245   12250

cat   gtt gta tgt ggg gga   aaa gcc cga gcg gct   gtc ggc gga cta 122974
His   Val Val Cys Gly Gly   Lys Ala Arg Ala Ala   Val Gly Gly Leu
12255   12260   12265

tga actacacatt taaataaaaa tacgtacaat cgaaaaaagg tgtatttttat   123027

ttagtgatta catcaatacg ccctccgtag gttcggcaaa tctaacccgg tgacagaccg 123087

gctgttgacg gggggatcct ttcaatattc cacgaatgtt ggaaactgtt ggtcttcctt 123147

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gtataagcaa atcctgttaa tattatattt ttgggatccg ca atg   tcc agg gta 123981
                                              Met   Ser Arg Val
                                              12270

tcg gag   tat ggg gta ccg gaa   ggt gtt cgg gaa tct   gat agc gat 124026
Ser Glu   Tyr Gly Val Pro Glu   Gly Val Arg Glu Ser   Asp Ser Asp
   12275   12280   12285

aca gac   tct gtg ttt atg tat   cag cat aca gag ctt   atg cag aac 124071
Thr Asp   Ser Val Phe Met Tyr   Gln His Thr Glu Leu   Met Gln Asn
   12290   12295   12300

aac gcg   tcg cca ctc gtc gtt   caa aca aga cca ccg   gcg gtt ctt 124116
Asn Ala   Ser Pro Leu Val Val   Gln Thr Arg Pro Pro   Ala Val Leu
   12305   12310   12315

att cca   ctg gtt gat gtc cca   agg cca cga tcc cgg   aga aag gcg 124161
Ile Pro   Leu Val Asp Val Pro   Arg Pro Arg Ser Arg   Arg Lys Ala
   12320   12325   12330

tcc gcg   caa ctg aaa atg caa   atg gac agg tta tgc   aac gta ctg 124206
Ser Ala   Gln Leu Lys Met Gln   Met Asp Arg Leu Cys   Asn Val Leu
   12335   12340   12345

ggt gta   gta ctc cag atg gcg   acg ttg gct ttg gtg   aca tat ata 124251

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Gly Val   Val Leu Gln Met Ala   Thr Leu Ala Leu Val   Thr Tyr Ile
    12350               12355               12360
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gct ttt   gtt gtg cat aca cgc   gcg aca agc tgc aag   cga gaa taa 124296
Ala Phe   Val Val His Thr Arg   Ala Thr Ser Cys Lys   Arg Glu
    12365               12370               12375
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ataccttccc cttccggaca gtagtttcat gtagttgagt tgggaggttc ctcgggaaaa 124356

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gccggtacac agcatttgcg aattcttaga aaagccagct gaagtctgtg gattccatca 124476

taagcgcagt ctaggcaatc gtaagactgt tgggtggtgc cattctccac gtgaggaaaa 124536

agaggcgggg agaacaccag actctcgcgg cttctgtaag ggggggggcgc gtctgccacg 124596

gcctcggcgt atgtgggtag gtaggggatg ggggtcgcaa cgtcatccat gctggggggac 124656

gacgtgaggg tgaccggcgg ggtcccaggt cggcgggagt agtgcacggt cgccatccga 124716

gcagtaaacg aggggtggac gcaaaaggcg cgggtttttgt taaaggctgg cggggggggg 124776

tttcccggca aaaaatccca tccccccccga tggtcgcccc gcaaacgcgc ggggaggtgg 124836

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Pro Gly Ala Ser Val Asp Val Asn Gly Lys Met Glu Tyr Gly Ser Ala
            20                  25                  30


Pro Gly Pro Leu Asn Gly Arg Asp Thr Ser Arg Gly Pro Gly Ala Phe
            35                  40                  45


Cys Thr Pro Gly Trp Glu Ile His Pro Ala Arg Leu Val Glu Asp Ile
    50                  55                  60


Asn Arg Val Phe Leu Cys Ile Ala Gln Ser Ser Gly Arg Val Thr Arg
65                  70                  75                  80


Asp Ser Arg Arg Leu Arg Arg Ile Cys Leu Asp Phe Tyr Leu Met Gly
                85                  90                  95


Arg Thr Arg Gln Arg Pro Thr Leu Ala Cys Trp Glu Glu Leu Leu Gln
                100                 105                 110
```

Leu Gln Pro Thr Gln Thr Gln Cys Leu Arg Ala Thr Leu Met Glu Val
  115   120   125

Ser His Arg Pro Pro Arg Gly Glu Asp Gly Phe Ile Glu Ala Pro Asn
 130   135   140

Val Pro Leu His Arg Ser Ala Leu Glu Cys Asp Val Ser Asp Asp Gly
145   150   155   160

Gly Glu Asp Asp Ser Asp Asp Asp Gly Ser Thr Pro Ser Asp Val Ile
    165   170   175

Glu Phe Arg Asp Ser Asp Ala Glu Ser Ser Asp Gly Glu Asp Phe Ile
   180   185   190

Val Glu Glu Glu Ser Glu Glu Ser Thr Asp Ser Cys Glu Pro Asp Gly
  195   200   205

Val Pro Gly Asp Cys Tyr Arg Asp Gly Asp Gly Cys Asn Thr Pro Ser
 210   215   220

Pro Lys Arg Pro Gln Arg Ala Ile Glu Arg Tyr Ala Gly Ala Glu Thr
225   230   235   240

Ala Glu Tyr Thr Ala Ala Lys Ala Leu Thr Ala Leu Gly Glu Gly Gly
   245   250   255

Val Asp Trp Lys Arg Arg Arg His Glu Ala Pro Arg Arg His Asp Ile
  260   265   270

Pro Pro Pro His Gly Val
  275

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Met Asn Leu Cys Gly Ser Arg Gly Glu His Pro Gly Gly Glu Tyr Ala
1   5   10   15

Gly Leu Tyr Cys Thr Arg His Asp Thr Pro Ala His Gln Ala Leu Met
  20   25   30

Asn Asp Ala Glu Arg Tyr Phe Ala Ala Ala Leu Cys Ala Ile Ser Thr
  35   40   45

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Glu Ala Tyr Glu Ala Phe Ile His Ser Pro Ser Glu Arg Pro Cys Ala
    50              55                  60

Ser Leu Trp Gly Arg Ala Lys Asp Ala Phe Gly Arg Met Cys Gly Glu
65              70                  75                  80

Leu Ala Ala Asp Arg Gln Arg Pro Pro Ser Val Pro Pro Ile Arg Arg
            85              90                  95

Ala Val Leu Ser Leu Leu Arg Glu Gln Cys Met Pro Asp Pro Gln Ser
            100             105                 110

His Leu Glu Leu Ser Glu Arg Leu Ile Leu Met Ala Tyr Trp Cys Cys
            115                 120                 125

Leu Gly His Ala Gly Leu Pro Thr Ile Gly Leu Ser Pro Asp Asn Lys
    130                 135                 140

Cys Ile Arg Ala Glu Leu Tyr Asp Arg Pro Gly Gly Ile Cys His Arg
145                 150                 155                 160

Leu Phe Asp Ala Tyr Leu Gly Cys Gly Ser Leu Gly Val Pro Arg Thr
                165                 170                 175

Tyr Glu Arg Ser
            180
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Met Ala Gly Gln Asn Thr Met Glu Gly Glu Ala Val Ala Leu Leu Met
1               5                   10                  15

Glu Ala Val Val Thr Pro Arg Ala Gln Pro Asn Asn Thr Thr Ile Thr
            20                  25                  30

Ala Ile Gln Pro Ser Arg Ser Ala Glu Lys Cys Tyr Tyr Ser Asp Ser
            35                  40                  45

Glu Asn Glu Thr Ala Asp Glu Phe Leu Arg Arg Ile Gly Lys Tyr Gln
    50                  55                  60

His Lys Ile Tyr His Arg Lys Lys Phe Cys Tyr Ile Thr Leu Ile Ile
65                  70                  75                  80
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Val Phe Val Phe Ala Met Thr Gly Ala Ala Phe Ala Leu Gly Tyr Ile
                85   90   95

Thr Ser Gln Phe Val Gly
            100

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Met Asp Thr Pro Pro Met Gln Arg Ser Thr Pro Gln Arg Ala Gly Ser
1   5   10   15

Pro Asp Thr Leu Glu Leu Met Asp Leu Leu Asp Ala Ala Ala Ala Ala
            20   25   30

Ala Glu His Arg Ala Arg Val Val Thr Ser Ser Gln Pro Asp Asp Leu
            35   40   45

Leu Phe Gly Glu Asn Gly Val Met Val Gly Arg Glu His Glu Ile Val
        50   55   60

Ser Ile Pro Ser Val Ser Gly Leu Gln Pro Glu Pro Arg Thr Glu Asp
65   70   75   80

Val Gly Glu Glu Leu Thr Gln Asp Asp Tyr Val Cys Glu Asp Gly Gln
                85   90   95

Asp Leu Met Gly Ser Pro Val Ile Pro Leu Ala Glu Val Phe His Thr
            100   105   110

Arg Phe Ser Glu Ala Gly Ala Arg Glu Pro Thr Gly Ala Asp Arg Ser
            115   120   125

Leu Glu Thr Val Ser Leu Gly Thr Lys Leu Ala Arg Ser Pro Lys Pro
    130   135   140

Pro Met Asn Asp Gly Glu Thr Gly Arg Gly Thr Thr Pro Pro Phe Pro
145   150   155   160

Gln Ala Phe Ser Pro Val Ser Pro Ala Ser Pro Val Gly Asp Ala Ala
            165   170   175

Gly Asn Asp Gln Arg Glu Asp Gln Arg Ser Ile Pro Arg Gln Thr Thr
            180   185   190

Page 350

Arg Gly Asn Ser Pro Gly Leu Pro Ser Val Val His Arg Asp Arg Gln
       195   200   205

Thr Gln Ser Ile Ser Gly Lys Lys Pro Gly Asp Glu Gln Ala Gly His
     210   215   220

Ala His Ala Ser Gly Asp Gly Val Val Leu Gln Lys Thr Gln Arg Pro
225   230   235   240

Ala Gln Gly Lys Ser Pro Lys Lys Thr Leu Lys Val Lys Val Pro
          245   250   255

Leu Pro Ala Arg Lys Pro Gly Gly Pro Val Pro Gly Pro Val Glu Gln
        260   265   270

Leu Tyr His Val Leu Ser Asp Ser Val Pro Ala Lys Gly Ala Lys Ala
     275   280   285

Asp Leu Pro Phe Glu Thr Asp Asp Thr Arg Pro Arg Lys His Asp Ala
290   295   300

Arg Gly Ile Thr Pro Arg Val Pro Gly Arg Ser Ser Gly Gly Lys Pro
305   310   315   320

Arg Ala Phe Leu Ala Leu Pro Gly Arg Ser His Ala Pro Asp Pro Ile
        325   330   335

Glu Asp Asp Ser Pro Val Glu Lys Lys Pro Lys Ser Arg Glu Phe Val
        340   345   350

Ser Ser Ser Ser Ser Ser Ser Ser Trp Gly Ser Ser Ser Glu Asp Glu
        355   360   365

Asp Asp Glu Pro Arg Arg Val Ser Val Gly Ser Glu Thr Thr Gly Ser
        370   375   380

Arg Ser Gly Arg Glu His Ala Pro Ser Pro Ser Asn Ser Asp Asp Ser
385   390   395   400

Asp Ser Asn Asp Gly Gly Ser Thr Lys Gln Asn Ile Gln Pro Gly Tyr
        405   410   415

Arg Ser Ile Ser Gly Pro Asp Pro Arg Ile Arg Lys Thr Lys Arg Leu
        420   425   430

Ala Gly Glu Pro Gly Arg Gln Arg Gln Lys Ser Phe Ser Leu Pro Arg
        435   440   445

Ser Arg Thr Pro Ile Ile Pro Pro Val Ser Gly Pro Leu Met Met Pro
    450   455   460

Asp Gly Ser Pro Trp Pro Gly Ser Ala Pro Leu Pro Ser Asn Arg Val
465   470   475   480

Arg Phe Gly Pro Ser Gly Glu Thr Arg Glu Gly His Trp Glu Asp Glu
                485   490   495

Ala Val Arg Ala Ala Arg Ala Arg Tyr Glu Ala Ser Thr Glu Pro Val
            500   505   510

Pro Leu Tyr Val Pro Glu Leu Gly Asp Pro Ala Arg Gln Tyr Arg Ala
        515   520   525

Leu Ile Asn Leu Ile Tyr Cys Pro Asp Arg Asp Pro Ile Ala Trp Leu
    530   535   540

Gln Asn Pro Lys Leu Thr Gly Val Asn Ser Ala Leu Asn Gln Phe Tyr
545   550   555   560

Gln Lys Leu Leu Pro Pro Gly Arg Ala Gly Thr Ala Val Thr Gly Ser
                565   570   575

Val Ala Ser Pro Val Pro His Val Gly Glu Ala Met Ala Thr Gly Glu
            580   585   590

Ala Leu Trp Ala Leu Pro His Ala Ala Ala Ala Val Ala Met Ser Arg
        595   600   605

Arg Tyr Asp Arg Ala Gln Lys His Phe Ile Leu Gln Ser Leu Arg Arg
    610   615   620

Ala Phe Ala Ser Met Ala Tyr Pro Glu Ala Thr Gly Ser Ser Pro Ala
625   630   635   640

Ala Arg Ile Ser Arg Gly His Pro Ser Pro Thr Thr Pro Ala Thr Gln
                645   650   655

Ala Pro Asp Pro Gln Pro Ser Ala Ala Ala Arg Ser Leu Ser Val Cys
            660   665   670

Pro Pro Asp Asp Arg Leu Arg Thr Pro Arg Lys Arg Lys Ser Gln Pro
        675   680   685

Val Glu Ser Arg Ser Leu Leu Asp Lys Ile Arg Glu Thr Pro Val Ala
    690   695   700

Asp Ala Arg Val Ala Asp Asp His Val Val Ser Lys Ala Lys Arg Arg
705   710   715   720

Val Ser Glu Pro Val Thr Ile Thr Ser Gly Pro Val Val Asp Pro Pro
            725   730   735

Ala Val Ile Thr Met Pro Leu Asp Gly Pro Ala Pro Asn Gly Gly Phe
            740   745   750

Arg Arg Ile Pro Arg Gly Ala Leu His Thr Pro Val Pro Ser Asp Gln
            755   760   765

Ala Arg Lys Ala Tyr Cys Thr Pro Glu Thr Ile Ala Arg Leu Val Asp
    770   775   780

Asp Pro Leu Phe Pro Thr Ala Trp Arg Pro Ala Leu Ser Phe Asp Pro
785   790   795   800

Gly Ala Leu Ala Glu Ile Ala Ala Arg Arg Pro Gly Gly Gly Asp Arg
            805   810   815

Arg Phe Gly Pro Pro Ser Gly Val Glu Ala Leu Arg Arg Arg Cys Ala
            820   825   830

Trp Met Arg Gln Ile Pro Asp Pro Glu Asp Val Arg Leu Leu Ile Ile
        835   840   845

Tyr Asp Pro Leu Pro Gly Glu Asp Ile Asn Gly Pro Leu Glu Ser Thr
    850   855   860

Leu Ala Thr Asp Pro Gly Pro Ser Trp Ser Pro Ser Arg Gly Gly Leu
865   870   875   880

Ser Val Val Leu Ala Ala Leu Ser Asn Arg Leu Cys Leu Pro Ser Thr
            885   890   895

His Ala Trp Ala Gly Asn Trp Thr Gly Pro Pro Asp Val Ser Ala Leu
        900   905   910

Asn Ala Arg Gly Val Leu Leu Leu Ser Thr Arg Asp Leu Ala Phe Ala
        915   920   925

Gly Ala Val Glu Tyr Leu Gly Ser Arg Leu Ala Ser Ala Arg Arg Arg
    930   935   940

Leu Leu Val Leu Asp Ala Val Ala Leu Glu Arg Trp Pro Arg Asp Gly

945   950   955   960

Pro Ala Leu Ser Gln Tyr His Val Tyr Val Arg Ala Pro Ala Arg Pro
                    965   970   975

Asp Ala Gln Ala Val Val Arg Trp Pro Asp Ser Ala Val Thr Glu Gly
                980   985   990

Leu Ala Arg Ala Val Phe Ala Ser Ser Arg Thr Phe Gly Pro Ala Ser
            995   1000   1005

Phe Ala Arg Ile Glu Thr Ala Phe Ala Asn Leu Tyr Pro Gly Glu
    1010   1015   1020

Gln Pro Leu Cys Leu Cys Arg Gly Gly Asn Val Ala Tyr Thr Val
    1025   1030   1035

Cys Thr Arg Ala Gly Pro Lys Thr Arg Val Pro Leu Ser Pro Arg
    1040   1045   1050

Glu Tyr Arg Gln Tyr Val Leu Pro Gly Phe Asp Gly Cys Lys Asp
    1055   1060   1065

Leu Ala Arg Gln Ser Arg Gly Leu Gly Leu Gly Ala Ala Asp Phe
    1070   1075   1080

Val Asp Glu Ala Ala His Ser His Arg Ala Ala Asn Arg Trp Gly
    1085   1090   1095

Leu Gly Ala Ala Leu Arg Pro Val Phe Leu Pro Glu Gly Arg Arg
    1100   1105   1110

Pro Gly Ala Ala Gly Pro Glu Ala Gly Asp Val Pro Thr Trp Ala
    1115   1120   1125

Arg Val Phe Cys Arg His Ala Leu Leu Glu Pro Asp Pro Ala Ala
    1130   1135   1140

Glu Pro Leu Val Leu Pro Pro Val Ala Gly Arg Ser Val Ala Leu
    1145   1150   1155

Tyr Ala Ser Ala Asp Glu Ala Arg Asn Ala Leu Pro Pro Ile Pro
    1160   1165   1170

Arg Val Met Trp Pro Pro Gly Phe Gly Ala Ala Glu Thr Val Leu
    1175   1180   1185

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Glu Gly  Ser Asp Gly Thr Arg  Phe Val Phe Gly His  His Gly Gly
    1190             1195              1200


Ser Glu  Arg Pro Ser Glu Thr  Gln Ala Gly Arg Gln  Arg Arg Thr
    1205             1210              1215


Ala Asp  Asp Arg Glu His Ala  Leu Glu Leu Asp Asp  Trp Glu Val
    1220             1225              1230


Gly Cys  Glu Asp Ala Trp Asp  Ser Glu Glu Gly Gly  Gly Asp Asp
    1235             1240              1245


Gly Asp  Ala Pro Gly Ser Ser  Phe Gly Val Ser Ile  Val Ser Val
    1250             1255              1260


Ala Pro  Gly Val Leu Arg Asp  Arg Arg Val Gly Leu  Arg Pro Ala
    1265             1270              1275


Val Lys  Val Glu Leu Leu Ser  Ser Ser Ser Ser Ser  Glu Asp Glu
    1280             1285              1290


Asp Asp  Val Trp Gly Gly Arg  Gly Gly Arg Ser Pro  Pro Gln Ser
    1295             1300              1305


Arg Gly
    1310
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Met Asp Thr Ile Leu Ala Gly Gly Ser Gly Thr Ser Asp Ala Ser Asp
1               5               10               15


Asn Thr Cys Thr Ile Cys Met Ser Thr Val Ser Asp Leu Gly Lys Thr
            20               25               30


Met Pro Cys Leu His Asp Phe Cys Phe Val Cys Ile Arg Ala Trp Thr
        35               40               45


Ser Thr Ser Val Gln Cys Pro Leu Cys Arg Cys Pro Val Gln Ser Ile
    50               55               60


Leu His Lys Ile Val Ser Asp Thr Ser Tyr Lys Glu Tyr Glu Val His
65               70               75               80
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Pro Ser Asp Asp Asp Gly Phe Ser Glu Pro Ser Phe Glu Asp Ser Ile
            85   90   95

Asp Ile Leu Pro Gly Asp Val Ile Asp Leu Leu Pro Pro Ser Pro Gly
            100   105   110

Pro Ser Arg Glu Ser Ile Gln Gln Pro Thr Ser Arg Ser Ser Arg Glu
            115   120   125

Pro Ile Gln Ser Pro Asn Pro Gly Pro Leu Gln Ser Ser Ala Arg Glu
        130   135   140

Pro Thr Ala Glu Ser Pro Ser Asp Ser Gln Gln Asp Ser Ile Gln Pro
145   150   155   160

Pro Thr Arg Asp Ser Ser Pro Gly Val Thr Lys Thr Cys Ser Thr Ala
            165   170   175

Ser Phe Leu Arg Lys Val Phe Phe Lys Asp Gln Pro Ala Val Arg Ser
            180   185   190

Ala Thr Pro Val Val Tyr Gly Ser Ile Glu Ser Ala Gln Gln Pro Arg
        195   200   205

Thr Gly Gly Gln Asp Tyr Arg Asp Arg Pro Val Ser Val Gly Ile Asn
    210   215   220

Gln Asp Pro Arg Thr Met Asp Arg Leu Pro Phe Arg Ala Thr Asp Arg
225   230   235   240

Gly Thr Glu Gly Asn Ala Arg Phe Pro Cys Tyr Met Gln Pro Leu Leu
            245   250   255

Gly Trp Leu Asp Asp Gln Leu Ala Glu Leu Tyr Gln Pro Glu Ile Val
            260   265   270

Glu Pro Thr Lys Met Leu Ile Leu Asn Tyr Ile Gly Ile Tyr Gly Arg
            275   280   285

Asp Glu Ala Gly Leu Lys Thr Ser Leu Arg Cys Leu Leu His Asp Ser
    290   295   300

Thr Gly Pro Phe Val Thr Asn Met Leu Phe Leu Leu Asp Arg Cys Thr
305   310   315   320

Asp Pro Thr Arg Leu Thr Met Gln Thr Trp Thr Trp Lys Asp Thr Ala
            325   330   335

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Ile Gln Leu Ile Thr Gly Pro Ile Val Arg Pro Glu Thr Thr Ser Thr
            340             345             350

Gly Glu Thr Ser Arg Gly Asp Glu Arg Asp Thr Arg Leu Val Asn Thr
            355             360             365

Pro Gln Lys Val Arg Leu Phe Ser Val Leu Pro Gly Ile Lys Pro Gly
        370             375             380

Ser Ala Arg Gly Ala Lys Arg Arg Leu Phe His Thr Gly Arg Asp Val
385             390             395             400

Lys Arg Cys Leu Thr Ile Asp Leu Thr Ser Glu Ser Asp Ser Ala Cys
                405             410             415

Lys Gly Ser Lys Thr Arg Lys Val Ala Ser Pro Gln Gly Glu Ser Asn
            420             425             430

Thr Pro Ser Thr Ser Gly Ser Thr Ser Gly Ser Leu Lys His Leu Thr
            435             440             445

Lys Lys Ser Ser Ala Gly Lys Ala Gly Lys Gly Ile Pro Asn Lys Met
        450             455             460

Lys Lys Ser
465
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<210> 57
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<212> PRT
<213> Varicella zoster

<400> 57

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Met Asp Val Ser Gly Glu Pro Thr Val Cys Ser Asn Ala Tyr Ala Asn
1               5               10              15

Glu Met Lys Leu Ser Asp Ser Lys Asp Ile Tyr Val Leu Ala His Pro
            20              25              30

Val Thr Lys Lys Thr Arg Lys Arg Pro Arg Gly Leu Pro Leu Gly Val
            35              40              45

Lys Leu Asp Pro Pro Thr Phe Lys Leu Asn Asn Met Ser His His Tyr
        50              55              60

Asp Thr Glu Thr Phe Thr Pro Val Ser Ser Gln Leu Asp Ser Val Glu
65              70              75              80
```

Val Phe Ser Lys Phe Asn Ile Ser Pro Glu Trp Tyr Asp Leu Leu Ser
                85   90   95

Asp Glu Leu Lys Glu Pro Tyr Ala Lys Gly Ile Phe Leu Glu Tyr Asn
            100   105   110

Arg Leu Leu Asn Ser Gly Glu Glu Ile Leu Pro Ser Thr Gly Asp Ile
            115   120   125

Phe Ala Trp Thr Arg Phe Cys Gly Pro Gln Ser Ile Arg Val Val Ile
    130   135   140

Ile Gly Gln Asp Pro Tyr Pro Thr Ala Gly His Ala His Gly Leu Ala
145   150   155   160

Phe Ser Val Lys Arg Gly Ile Thr Pro Pro Ser Ser Leu Lys Asn Ile
            165   170   175

Phe Ala Ala Leu Met Glu Ser Tyr Pro Asn Met Thr Pro Pro Thr His
            180   185   190

Gly Cys Leu Glu Ser Trp Ala Arg Gln Gly Val Leu Leu Leu Asn Thr
            195   200   205

Thr Leu Thr Val Arg Arg Gly Thr Pro Gly Ser His Val Tyr Leu Gly
    210   215   220

Trp Gly Arg Leu Val Gln Arg Val Leu Gln Arg Leu Cys Glu Asn Arg
225   230   235   240

Thr Gly Leu Val Phe Met Leu Trp Gly Ala His Ala Gln Lys Thr Thr
            245   250   255

Gln Pro Asn Ser Arg Cys His Leu Val Leu Thr His Ala His Pro Ser
            260   265   270

Pro Leu Ser Arg Val Pro Phe Arg Asn Cys Arg His Phe Val Gln Ala
            275   280   285

Asn Glu Tyr Phe Thr Arg Lys Gly Glu Pro Glu Ile Asp Trp Ser Val
    290   295   300

Ile
305

<210> 58
<211> 71

<212> PRT
<213> Varicella zoster

<400> 58

Met Asp Val Arg Glu Arg Asn Val Phe Gly Asn Ala Ser Val Ala Thr
1   5   10   15

Pro Gly Glu His Gln Lys Phe Val Arg Glu Leu Ile Leu Ser Gly His
            20   25   30

Asn Asn Val Val Leu Gln Thr Tyr Thr Gly Lys Trp Ser Asp Cys Arg
        35   40   45

Lys His Gly Lys Ser Val Met Tyr Asn Thr Gly Glu Ala Arg His Pro
    50   55   60

Thr Cys Lys Ala His Gln Arg
65   70

<210> 59
<211> 331
<212> PRT
<213> Varicella zoster

<400> 59

Met Gln Arg Ile Arg Pro Tyr Trp Ile Lys Phe Glu Gln Thr Gly Gly
1   5   10   15

Ala Gly Met Ala Asp Gly Met Ser Gly Ile Asn Ile Pro Ser Ile Leu
            20   25   30

Gly Cys Ser Val Thr Ile Asp Asn Leu Leu Thr Arg Ala Glu Glu Gly
        35   40   45

Leu Asp Val Ser Asp Val Ile Glu Asp Leu Arg Ile Gln Ala Ile Pro
    50   55   60

Arg Phe Val Cys Glu Ala Arg Glu Val Thr Gly Leu Lys Pro Arg Phe
65   70   75   80

Leu Ala Asn Ser Val Val Ser Leu Arg Val Lys Pro Glu His Gln Glu
                85   90   95

Thr Val Leu Val Val Leu Asn Gly Asp Ser Ser Glu Val Ser Cys Asp
                100   105   110

Arg Tyr Tyr Met Glu Cys Val Thr Gln Pro Ala Phe Arg Gly Phe Ile
                115   120   125

Phe Ser Val Leu Thr Ala Val Glu Asp Arg Val Tyr Thr Val Gly Val
    130   135   140

Pro Pro Arg Leu Leu Ile Tyr Arg Met Thr Leu Phe Arg Pro Asp Asn
145   150   155   160

Val Leu Asp Phe Thr Leu Cys Val Ile Leu Met Tyr Leu Glu Gly Ile
            165   170   175

Gly Pro Ser Gly Ala Ser Pro Ser Leu Phe Val Gln Leu Ser Val Tyr
            180   185   190

Leu Arg Arg Val Glu Cys Gln Ile Gly Pro Leu Glu Lys Met Arg Arg
        195   200   205

Phe Leu Tyr Glu Gly Val Leu Trp Leu Leu Asn Thr Leu Met Tyr Val
    210   215   220

Val Asp Asn Asn Pro Phe Thr Lys Thr Arg Val Leu Pro His Tyr Met
225   230   235   240

Phe Val Lys Leu Leu Asn Pro Gln Pro Gly Thr Ala Pro Asn Ile Ile
            245   250   255

Lys Ala Ile Tyr Ser Cys Gly Val Gly Gln Arg Phe Asp Leu Pro His
            260   265   270

Gly Thr Pro Pro Cys Pro Asp Gly Val Val Gln Val Pro Pro Gly Leu
        275   280   285

Leu Asn Gly Pro Leu Arg Asp Ser Glu Tyr Gln Lys Ser Val Tyr Phe
    290   295   300

Trp Trp Leu Asn Arg Thr Met Val Thr Pro Lys Asn Val Gln Leu Phe
305   310   315   320

Glu Thr Tyr Lys Asn Ser Pro Arg Val Val Lys
            325   330

<210>   60
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<212>   PRT
<213>   Varicella zoster

<400>   60

Met Glu Phe Pro Tyr His Ser Thr Val Ser Tyr Asn Gly Val Thr Phe
1   5   10   15

Tyr Phe Asn Glu Arg Ala Thr Arg Ala Tyr Phe Ile Cys Gly Gly Cys
            20   25   30

Leu Ile Ser Ile Pro Arg Lys His Gly Gly Glu Ile Ala Lys Phe Gly
            35   40   45

His Val Val Arg Gly Val Gly Pro Gly Asp Arg Ser Val Ala Ser Tyr
            50   55   60

Val Arg Ser Glu Leu Asn Arg Thr Gly Lys Thr Trp Ala Val Ser Ser
65   70   75   80

Asn Asn Asn Cys Val Phe Leu Asp Arg Val Ala Leu Leu Ala Ala Gly
                85   90   95

Ser Gly Ala Val Asp Arg Asp Leu Cys Gly Thr Phe Asp Val Glu Val
            100   105   110

Glu Asp Pro Thr Leu Ala Asp Tyr Leu Val Ser Leu Pro Val Thr His
            115   120   125

Leu Thr Leu Val Ala Gly Val Asp Val Thr Arg Glu Asn Lys Leu Lys
    130   135   140

Leu Phe Pro Thr Pro Thr Ala Ile Asn Thr Thr Asn Gly Phe Met Tyr
145   150   155   160

Val Pro Asn Glu Ala Ser Phe Ser Leu Val Tyr Met Arg Met Leu Glu
            165   170   175

Leu Pro Glu Ser Leu Gln Glu Leu Val Ser Gly Leu Phe Asp Gly Thr
            180   185   190

Pro Glu Ile Arg Asp Ala Leu Asn Gly Ser Asn Asp Asp Glu Lys Thr
            195   200   205

Ser Ile Ile Val Ser Arg Arg Ala Ala Asp Val Val Thr Glu Asp Val
    210   215   220

Lys Ala Asp Asp Val Pro Ile Ser Gly Glu Pro Tyr Ser Glu Lys Gln
225   230   235   240

Pro Arg Arg Arg Lys Lys Ser Asp His Ile Thr Leu Ser Asn Phe Val
            245   250   255

Gln Ile Arg Thr Ile Pro Arg Val Met Asp Ile Trp Asp Pro Arg His
            260   265   270

Lys Ala Thr Thr His Cys Ile Arg Ala Leu Ser Cys Ala Val Phe Phe
        275   280   285

Ala Asp Glu Val Ile Phe Lys Ala Arg Lys Trp Pro Gly Leu Glu Asp
        290   295   300

Glu Leu Asn Glu Ala Arg Glu Thr Ile Tyr Thr Ala Val Val Ala Val
305   310   315   320

Tyr Gly Glu Arg Gly Glu Leu Pro Phe Phe Gly His Ala Tyr Gly Arg
                325   330   335

Asp Leu Thr Ser Cys Gln Arg Phe Val Ile Val Gln Tyr Ile Leu Ser
            340   345   350

Arg Trp Glu Ala Phe Asn Cys Tyr Ala Val Ile Glu Asp Leu Thr Arg
        355   360   365

Ser Tyr Val Asn Ala Leu Pro Ser Asp Asp Thr Asp Gln Val Ala
    370   375   380

Gln Asp Leu Ile Arg Thr Ile Val Asp Thr Ala Asn Ser Leu Leu Arg
385   390   395   400

Glu Val Gly Phe Ile Gly Thr Leu Ala Glu Thr Leu Leu Phe Leu Pro
                405   410   415

Leu Pro Gln Leu Pro Cys Tyr Lys Glu Thr Ser His Leu Ala Lys Lys
            420   425   430

Glu Gly Val Arg Ile Leu Arg Leu Ala Lys Thr Gly Val Gly Leu Ser
            435   440   445

Asp Thr Val Pro Val Asp Val Ser Val Thr Glu Arg His Glu Tyr Glu
    450   455   460

Ile Ser Arg Tyr Leu Asp Thr Leu Tyr Ser Gly Asp Pro Cys Tyr Asn
465   470   475   480

Gly Ala Val Arg Leu Cys Arg Leu Leu Gly Ser Ser Ile Pro Ile Ala
            485   490   495

Leu Tyr Tyr Asn Thr Ile Ser Gly Asn Ala Phe Glu Pro Tyr Phe Ala
            500   505   510

Gly Arg Arg Tyr Ile Ala Tyr Leu Gly Ala Leu Phe Phe Gly Arg Val
                        Page 362

                515   520   525

His Gln Thr Pro Phe Gly Asp Gly Lys Lys Thr Gln Arg
    530   535   540

<210> 61
<211> 258
<212> PRT
<213> Varicella zoster

<400> 61

Met Ser Ala Ser Arg Ile Arg Ala Lys Cys Phe Arg Leu Gly Gln Arg
1   5   10   15

Cys His Thr Arg Phe Tyr Asp Val Leu Lys Lys Asp Ile Asp Asn Val
            20   25   30

Arg Arg Gly Phe Ala Asp Ala Phe Asn Pro Arg Leu Ala Lys Leu Leu
        35   40   45

Ser Pro Leu Ser His Val Asp Val Gln Arg Ala Val Arg Ile Ser Met
    50   55   60

Ser Phe Glu Val Asn Leu Gly Arg Arg Arg Pro Asp Cys Val Cys Ile
65   70   75   80

Ile Gln Thr Glu Ser Ser Gly Ala Gly Lys Thr Val Cys Phe Ile Val
            85   90   95

Glu Leu Lys Ser Cys Arg Phe Ser Ala Asn Ile His Thr Pro Thr Lys
            100   105   110

Tyr His Gln Phe Cys Glu Gly Met Arg Gln Leu Arg Asp Thr Met Ala
        115   120   125

Leu Ile Lys Glu Thr Thr Pro Thr Gly Ser Asp Glu Ile Met Val Thr
    130   135   140

Pro Leu Leu Val Phe Val Ser Gln Arg Gly Leu Asn Leu Leu Gln Val
145   150   155   160

Thr Arg Leu Pro Pro Lys Val Ile His Gly Asn Leu Val Met Leu Ala
            165   170   175

Ser His Leu Glu Asn Val Ala Glu Tyr Thr Pro Pro Ile Arg Ser Val
            180   185   190

Arg Glu Arg Arg Arg Leu Cys Lys Lys Lys Ile His Val Cys Ser Leu
                            Page 363

Ala Lys Lys Arg Ala Lys Ser Cys His Arg Ser Ala Leu Thr Lys Phe
    210   215   220

Glu Glu Asn Ala Ala Cys Gly Val Asp Leu Pro Leu Arg Arg Pro Ser
225   230   235   240

Leu Gly Ala Cys Gly Gly Ile Leu Gln Ser Ile Thr Gly Met Phe Ser
                245   250   255

His Gly

<210> 62
<211> 579
<212> PRT
<213> Varicella zoster

<400> 62

Met Thr Ala Arg Tyr Gly Phe Gly Ser Ile Ser Phe Pro Asn Lys Cys
1   5   10   15

Gly Ile Phe Leu Ser Thr Thr Lys Asn Phe Ile Ala Pro Asn Phe Pro
            20   25   30

Ile His Tyr Trp Thr Ala Pro Ala Phe Glu Leu Arg Gly Arg Met Asn
        35   40   45

Pro Asp Leu Glu Lys Asn Thr Leu Thr Leu Lys Asn Ala Ala Ala Val
    50   55   60

Ala Ala Leu Asp Asn Leu Arg Gly Glu Thr Ile Thr Leu Pro Thr Glu
65   70   75   80

Ile Asp Arg Arg Leu Lys Pro Leu Glu Glu Gln Leu Thr Arg Met Ala
            85   90   95

Lys Val Leu Asp Ser Leu Glu Thr Ala Ala Ala Glu Ala Glu Glu Ala
            100   105   110

Asp Ala Gln Ser Glu Glu Cys Thr Arg Thr Glu Ile Ile Arg Asn Glu
        115   120   125

Ser Ile His Pro Glu Val Gln Ile Ala Lys Asn Asp Ala Pro Leu Gln
    130   135   140

Tyr Asp Thr Asn Phe Gln Val Asp Phe Ile Thr Leu Val Tyr Leu Gly
                    Page 364

145   150   155   160

Arg Ala Arg Gly Asn Asn Ser Pro Gly Ile Val Phe Gly Pro Trp Tyr
            165   170   175

Arg Thr Leu Gln Glu Arg Leu Val Leu Asp Arg Pro Val Ala Ala Arg
            180   185   190

Gly Val Asp Cys Lys Asp Gly Arg Ile Ser Arg Thr Phe Met Asn Thr
            195   200   205

Thr Val Thr Cys Leu Gln Ser Ala Gly Arg Met Tyr Val Gly Asp Arg
            210   215   220

Ala Tyr Ser Ala Phe Glu Cys Ala Val Leu Cys Leu Tyr Leu Met Tyr
225   230   235   240

Arg Thr Ser Asn Ser Val His Glu Pro Gln Val Ser Ser Phe Gly Asn
            245   250   255

Leu Ile Glu His Leu Pro Glu Tyr Thr Glu Thr Phe Val Asn Tyr Met
            260   265   270

Thr Thr His Glu Asn Lys Asn Ser Tyr Gln Phe Cys Tyr Asp Arg Leu
            275   280   285

Pro Arg Asp Gln Phe His Ala Arg Gly Gly Arg Tyr Asp Gln Gly Ala
            290   295   300

Leu Thr Ser His Ser Val Met Asp Ala Leu Ile Arg Leu Gln Val Leu
305   310   315   320

Pro Pro Ala Pro Gly Gln Phe Asn Pro Gly Val Asn Asp Ile Ile Asp
            325   330   335

Arg Asn His Thr Ala Tyr Val Asp Lys Ile Gln Gln Ala Ala Ala Ala
            340   345   350

Tyr Leu Glu Arg Ala Gln Asn Val Phe Leu Met Glu Asp Gln Thr Leu
            355   360   365

Leu Arg Leu Thr Ile Asp Thr Ile Thr Ala Leu Leu Leu Leu Arg Arg
            370   375   380

Leu Leu Trp Asn Gly Asn Val Tyr Gly Asp Lys Leu Lys Asn Asn Phe
385   390   395   400

```
Gln Leu Gly Leu Ile Val Ser Glu Ala Thr Gly Thr Pro Thr Asn Asn
                405             410                 415

Val Ile Leu Arg Gly Ala Thr Gly Phe Asp Gly Lys Phe Lys Ser Gly
                420             425                 430

Asn Asn Asn Phe Gln Phe Leu Cys Glu Arg Tyr Ile Ala Pro Leu Tyr
            435             440             445

Thr Leu Asn Arg Thr Thr Glu Leu Thr Glu Met Phe Pro Gly Leu Val
        450             455             460

Ala Leu Cys Leu Asp Ala His Thr Gln Leu Ser Arg Gly Ser Leu Gly
465             470             475                 480

Arg Thr Val Ile Asp Ile Ser Ser Gly Gln Tyr Gln Asp Arg Leu Ile
                485             490                 495

Ser Leu Ile Ala Leu Glu Leu Glu His Arg Arg Gln Asn Val Thr Ser
            500             505             510

Leu Pro Ile Ala Ala Val Val Ser Ile His Asp Ser Val Met Leu Gln
        515             520             525

Tyr Glu Arg Gly Leu Gly Met Leu Met His Gln Pro Arg Val Arg Ala
    530             535             540

Ala Leu Glu Glu Ser Arg Arg Leu Ala Gln Phe Asn Val Asn Ser Asp
545             550             555             560

Tyr Asp Leu Leu Tyr Phe Val Cys Leu Gly Val Ile Pro Gln Phe Ala
            565             570                 575

Ser Thr Pro
```

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<210>   63
<211>   605
<212>   PRT
<213>   Varicella zoster

<400>   63
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Met Ala Ala Glu Ala Asp Glu Glu Asn Cys Glu Ala Leu Tyr Val Ala
1               5               10                  15

Gly Tyr Leu Ala Leu Tyr Ser Lys Asp Glu Gly Glu Leu Asn Ile Thr
            20              25                  30
```

Pro Glu Ile Val Arg Ser Ala Leu Pro Pro Thr Ser Lys Ile Pro Ile
        35   40   45

Asn Ile Asp His Arg Lys Asp Cys Val Val Gly Glu Val Ile Ala Ile
        50   55   60

Ile Glu Asp Ile Arg Gly Pro Phe Phe Leu Gly Ile Val Arg Cys Pro
65   70   75   80

Gln Leu His Ala Val Leu Phe Glu Ala Ala His Ser Asn Phe Phe Gly
                85   90   95

Asn Arg Asp Ser Val Leu Ser Pro Leu Glu Arg Ala Leu Tyr Leu Val
                100   105   110

Thr Asn Tyr Leu Pro Ser Val Ser Leu Ser Ser Lys Arg Leu Ser Pro
        115   120   125

Asn Glu Ile Pro Asp Gly Asn Phe Phe Thr His Val Ala Leu Cys Val
        130   135   140

Val Gly Arg Arg Val Gly Thr Val Val Asn Tyr Asp Cys Thr Pro Glu
145   150   155   160

Ser Ser Ile Glu Pro Phe Arg Val Leu Ser Met Glu Ser Lys Ala Arg
                165   170   175

Leu Leu Ser Leu Val Lys Asp Tyr Ala Gly Leu Asn Lys Val Trp Lys
                180   185   190

Val Ser Glu Asp Lys Leu Ala Lys Val Leu Leu Ser Thr Ala Val Asn
        195   200   205

Asn Met Leu Leu Arg Asp Arg Trp Asp Val Val Ala Lys Arg Arg Arg
        210   215   220

Glu Ala Gly Ile Met Gly His Val Tyr Leu Gln Ala Ser Thr Gly Tyr
225   230   235   240

Gly Leu Ala Arg Ile Thr Asn Val Asn Gly Val Glu Ser Lys Leu Pro
                245   250   255

Asn Ala Gly Val Ile Asn Ala Thr Phe His Pro Gly Gly Pro Ile Tyr
                260   265   270

Asp Leu Ala Leu Gly Val Gly Glu Ser Asn Glu Asp Cys Glu Lys Thr
        275   280   285

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Val Pro His Leu Lys Val Thr Gln Leu Cys Arg Asn Asp Ser Asp Met
    290   295   300

Ala Ser Val Ala Gly Asn Ala Ser Asn Ile Ser Pro Gln Pro Pro Ser
305   310   315   320

Gly Val Pro Thr Gly Gly Glu Phe Val Leu Ile Pro Thr Ala Tyr Tyr
                325   330   335

Ser Gln Leu Leu Thr Gly Gln Thr Lys Asn Pro Gln Val Ser Ile Gly
            340   345   350

Ala Pro Asn Asn Gly Gln Tyr Ile Val Gly Pro Tyr Gly Ser Pro His
            355   360   365

Pro Pro Ala Phe Pro Pro Asn Thr Gly Gly Tyr Gly Cys Pro Pro Gly
    370   375   380

His Phe Gly Gly Pro Tyr Gly Phe Pro Gly Tyr Pro Pro Pro Asn Arg
385   390   395   400

Leu Glu Met Gln Met Ser Ala Phe Met Asn Ala Leu Ala Ala Glu Arg
                405   410   415

Gly Ile Asp Leu Gln Thr Pro Cys Val Asn Phe Pro Asp Lys Thr Asp
            420   425   430

Val Arg Arg Pro Gly Lys Arg Asp Phe Lys Ser Met Asp Gln Arg Glu
            435   440   445

Leu Asp Ser Phe Tyr Ser Gly Glu Ser Gln Met Asp Gly Glu Phe Pro
    450   455   460

Ser Asn Ile Tyr Phe Pro Gly Glu Pro Thr Tyr Ile Thr His Arg Arg
465   470   475   480

Arg Arg Val Ser Pro Ser Tyr Trp Gln Arg Arg His Arg Val Ser Asn
                485   490   495

Gly Gln His Glu Glu Leu Ala Gly Val Val Ala Lys Leu Gln Gln Glu
            500   505   510

Val Thr Glu Leu Lys Ser Gln Asn Gly Thr Gln Met Pro Leu Ser His
        515   520   525

His Thr Asn Ile Pro Glu Gly Thr Arg Asp Pro Arg Ile Ser Ile Leu
    530   535   540

```
Leu Lys Gln Leu Gln Ser Val Ser Gly Leu Cys Ser Ser Gln Asn Thr
545             550             555             560

Thr Ser Thr Pro His Thr Asp Thr Val Gly Gln Asp Val Asn Ala Val
                565             570             575

Glu Ala Ser Ser Lys Ala Pro Leu Ile Gln Gly Ser Thr Ala Asp Asp
            580             585             590

Ala Asp Met Phe Ala Asn Gln Met Met Val Gly Arg Cys
        595             600             605
```

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<210>   64
<211>   1194
<212>   PRT
<213>   Varicella zoster

<400>   64
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Met Ala Ile Arg Thr Gly Phe Cys Asn Pro Phe Leu Thr Gln Ala Ser
1               5               10              15

Gly Ile Lys Tyr Asn Pro Arg Thr Gly Arg Gly Ser Asn Arg Glu Phe
            20              25              30

Leu His Ser Tyr Lys Thr Thr Met Ser Ser Phe Gln Phe Leu Ala Pro
        35              40              45

Lys Cys Leu Asp Glu Asp Val Pro Met Glu Glu Arg Lys Gly Val His
    50              55              60

Val Gly Thr Leu Ser Arg Pro Pro Lys Val Tyr Cys Asn Gly Lys Glu
65              70              75              80

Val Pro Ile Leu Asp Phe Arg Cys Ser Ser Pro Trp Pro Arg Arg Val
                85              90              95

Asn Ile Trp Gly Glu Ile Asp Phe Arg Gly Asp Lys Phe Asp Pro Arg
            100             105             110

Phe Asn Thr Phe His Val Tyr Asp Ile Val Glu Thr Thr Glu Ala Ala
        115             120             125

Ser Asn Gly Asp Val Ser Arg Phe Ala Thr Ala Thr Arg Pro Leu Gly
    130             135             140

Thr Val Ile Thr Leu Leu Gly Met Ser Arg Cys Gly Lys Arg Val Ala
145             150             155             160
```

Val His Val Tyr Gly Ile Cys Gln Tyr Phe Tyr Ile Asn Lys Ala Glu
                165   170   175

Val Asp Thr Ala Cys Gly Ile Arg Ser Gly Ser Glu Leu Ser Val Leu
                180   185   190

Leu Ala Glu Cys Leu Arg Ser Ser Met Ile Thr Gln Asn Asp Ala Thr
                195   200   205

Leu Asn Gly Asp Lys Asn Ala Phe His Gly Thr Ser Phe Lys Ser Ala
        210   215   220

Ser Pro Glu Ser Phe Arg Val Glu Val Ile Glu Arg Thr Asp Val Tyr
225   230   235   240

Tyr Tyr Asp Thr Gln Pro Cys Ala Phe Tyr Arg Val Tyr Ser Pro Ser
                245   250   255

Ser Lys Phe Thr Asn Tyr Leu Cys Asp Asn Phe His Pro Glu Leu Lys
                260   265   270

Lys Tyr Glu Gly Arg Val Asp Ala Thr Thr Arg Phe Leu Met Asp Asn
                275   280   285

Pro Gly Phe Val Ser Phe Gly Trp Tyr Gln Leu Lys Pro Gly Val Asp
        290   295   300

Gly Glu Arg Val Arg Val Arg Pro Ala Ser Arg Gln Leu Thr Leu Ser
305   310   315   320

Asp Val Glu Ile Asp Cys Met Ser Asp Asn Leu Gln Ala Ile Pro Asn
                325   330   335

Asp Asp Ser Trp Pro Asp Tyr Lys Leu Leu Cys Phe Asp Ile Glu Cys
                340   345   350

Lys Ser Gly Gly Ser Asn Glu Leu Ala Phe Pro Asp Ala Thr His Leu
                355   360   365

Glu Asp Leu Val Ile Gln Ile Ser Cys Leu Leu Tyr Ser Ile Pro Arg
        370   375   380

Gln Ser Leu Glu His Ile Leu Leu Phe Ser Leu Gly Ser Cys Asp Leu
385   390   395   400

Pro Gln Arg Tyr Val Gln Glu Met Lys Asp Ala Gly Leu Pro Glu Pro

```
                405                     410                     415

        Thr Val Leu Glu Phe Asp Ser Glu Phe Glu Leu Leu Ile Ala Phe Met
                    420             425                 430

        Thr Leu Val Lys Gln Tyr Ala Pro Glu Phe Ala Thr Gly Tyr Asn Ile
                    435             440                 445

        Val Asn Phe Asp Trp Ala Phe Ile Met Glu Lys Leu Asn Ser Ile Tyr
            450             455                 460

        Ser Leu Lys Leu Asp Gly Tyr Gly Ser Ile Asn Arg Gly Gly Leu Phe
        465             470                 475                 480

        Lys Ile Trp Asp Val Gly Lys Ser Gly Phe Gln Arg Arg Ser Lys Val
                    485             490                 495

        Lys Ile Asn Gly Leu Ile Ser Leu Asp Met Tyr Ala Ile Ala Thr Glu
                    500             505                 510

        Lys Leu Lys Leu Ser Ser Tyr Lys Leu Asp Ser Val Ala Arg Glu Ala
                    515             520                 525

        Leu Asn Glu Ser Lys Arg Asp Leu Pro Tyr Lys Asp Ile Pro Gly Tyr
            530             535                 540

        Tyr Ala Ser Gly Pro Asn Thr Arg Gly Ile Ile Gly Glu Tyr Cys Ile
        545             550                 555                 560

        Gln Asp Ser Ala Leu Val Gly Lys Leu Phe Phe Lys Tyr Leu Pro His
                    565             570                 575

        Leu Glu Leu Ser Ala Val Ala Arg Leu Ala Arg Ile Thr Leu Thr Lys
                    580             585                 590

        Ala Ile Tyr Asp Gly Gln Gln Val Arg Ile Tyr Thr Cys Leu Leu Gly
                    595             600                 605

        Leu Ala Ser Ser Arg Gly Phe Ile Leu Pro Asp Gly Gly Tyr Pro Ala
            610             615                 620

        Thr Phe Glu Tyr Lys Asp Val Ile Pro Asp Val Gly Asp Val Glu Glu
        625             630                 635                 640

        Glu Met Asp Glu Asp Glu Ser Val Ser Pro Thr Gly Thr Ser Ser Gly
                    645             650                 655
```

Arg Asn Val Gly Tyr Lys Gly Ala Arg Val Phe Asp Pro Asp Thr Gly
     660   665   670

Phe Tyr Ile Asp Pro Val Val Val Leu Asp Phe Ala Ser Leu Tyr Pro
     675   680   685

Ser Ile Ile Gln Ala His Asn Leu Cys Phe Thr Thr Leu Thr Leu Asn
     690   695   700

Phe Glu Thr Val Lys Arg Leu Asn Pro Ser Asp Tyr Ala Thr Phe Thr
705   710   715   720

Val Gly Gly Lys Arg Leu Phe Phe Val Arg Ser Asn Val Arg Glu Ser
          725   730   735

Leu Leu Gly Val Leu Leu Lys Asp Trp Leu Ala Met Arg Lys Ala Ile
          740   745   750

Arg Ala Arg Ile Pro Gly Ser Ser Asp Glu Ala Val Leu Leu Asp
          755   760   765

Lys Gln Gln Ala Ala Ile Lys Val Val Cys Asn Ser Val Tyr Gly Phe
     770   775   780

Thr Gly Val Ala Gln Gly Phe Leu Pro Cys Leu Tyr Val Ala Ala Thr
785   790   795   800

Val Thr Thr Ile Gly Arg Gln Met Leu Leu Ser Thr Arg Asp Tyr Ile
          805   810   815

His Asn Asn Trp Ala Ala Phe Glu Arg Phe Ile Thr Ala Phe Pro Asp
          820   825   830

Ile Glu Ser Ser Val Leu Ser Gln Lys Ala Tyr Glu Val Lys Val Ile
          835   840   845

Tyr Gly Asp Thr Asp Ser Val Phe Ile Arg Phe Lys Gly Val Ser Val
     850   855   860

Glu Gly Ile Ala Lys Ile Gly Glu Lys Met Ala His Ile Ile Ser Thr
865   870   875   880

Ala Leu Phe Cys Pro Pro Ile Lys Leu Glu Cys Glu Lys Thr Phe Ile
          885   890   895

Lys Leu Leu Leu Ile Thr Lys Lys Lys Tyr Ile Gly Val Ile Tyr Gly
          900   905   910

Gly Lys Val Leu Met Lys Gly Val Asp Leu Val Arg Lys Asn Asn Cys
     915   920   925

Gln Phe Ile Asn Asp Tyr Ala Arg Lys Leu Val Glu Leu Leu Leu Tyr
930   935   940

Asp Asp Thr Val Ser Arg Ala Ala Ala Glu Ala Ser Cys Val Ser Ile
945   950   955   960

Ala Glu Trp Asn Arg Arg Ala Met Pro Ser Gly Met Ala Gly Phe Gly
          965   970   975

Arg Ile Ile Ala Asp Ala His Arg Gln Ile Thr Ser Pro Lys Leu Asp
         980   985   990

Ile Asn Lys Phe Val Met Thr Ala Glu Leu Ser Arg Pro Pro Ser Ala
     995   1000   1005

Tyr Ile Asn Arg Arg Leu Ala His Leu Thr Val Tyr Tyr Lys Leu
  1010   1015   1020

Val Met Arg Gln Gly Gln Ile Pro Asn Val Arg Glu Arg Ile Pro
  1025   1030   1035

Tyr Val Ile Val Ala Pro Thr Asp Glu Val Glu Ala Asp Ala Lys
  1040   1045   1050

Ser Val Ala Leu Leu Arg Gly Asp Pro Leu Gln Asn Thr Ala Gly
  1055   1060   1065

Lys Arg Cys Gly Glu Ala Lys Arg Lys Leu Ile Ile Ser Asp Leu
  1070   1075   1080

Ala Glu Asp Pro Ile His Val Thr Ser His Gly Leu Ser Leu Asn
  1085   1090   1095

Ile Asp Tyr Tyr Phe Ser His Leu Ile Gly Thr Ala Ser Val Thr
  1100   1105   1110

Phe Lys Ala Leu Phe Gly Asn Asp Thr Lys Leu Thr Glu Arg Leu
  1115   1120   1125

Leu Lys Arg Phe Ile Pro Glu Thr Arg Val Val Asn Val Lys Met
  1130   1135   1140

Leu Asn Arg Leu Gln Ala Ala Gly Phe Val Cys Ile His Ala Pro
  1145   1150   1155

```
Cys Trp  Asp Asn Lys Met Asn  Thr Glu Ala Glu Ile  Thr Glu Glu
    1160             1165                 1170

Glu Gln  Ser His Gln Ile Met  Arg Arg Val Phe Cys  Ile Pro Lys
    1175             1180                 1185

Ala Ile  Leu His Gln Ser
    1190
```

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<210>  65
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<212>  PRT
<213>  Varicella zoster

<400>  65
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Met Tyr Glu Ser Glu Asn Ala Ser Glu His His Pro Glu Leu Glu Asp
1               5               10              15

Val Phe Ser Glu Asn Thr Gly Asp Ser Asn Pro Ser Met Gly Ser Ser
            20              25              30

Asp Ser Thr Arg Ser Ile Ser Gly Met Arg Ala Arg Asp Leu Ile Thr
            35              40              45

Asp Thr Asp Val Asn Leu Leu Asn Ile Asp Ala Leu Glu Ser Lys Tyr
    50              55              60

Phe Pro Ala Asp Ser Thr Phe Thr Leu Ser Val Trp Phe Glu Asn Leu
65              70              75              80

Ile Pro Pro Glu Ile Glu Ala Ile Leu Pro Thr Thr Asp Ala Gln Leu
            85              90              95

Asn Tyr Ile Ser Phe Thr Ser Arg Leu Ala Ser Val Leu Lys His Lys
            100             105             110

Glu Ser Asn Asp Ser Glu Lys Ser Ala Tyr Val Val Pro Cys Glu His
            115             120             125

Ser Ala Ser Val Thr Arg Arg Arg Glu Arg Phe Ala Gly Val Met Ala
    130             135             140

Lys Phe Leu Asp Leu His Glu Ile Leu Lys Asp Ala
145             150             155
```

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<210>  66
<211>  269
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<212> PRT
<213> Varicella zoster

<400> 66

```
Met Ser Arg Arg Thr Tyr Val Arg Ser Glu Arg Arg Arg Gly Cys Gly
1               5                   10                  15

Asp Asn Leu Leu Gln Arg Ile Arg Leu Val Val Pro Ser Ala Leu Gln
            20                  25                  30

Cys Cys Asp Gly Asp Leu Pro Ile Phe Asp Pro Gln Arg Pro Pro Ala
            35                  40                  45

Arg Cys Val Phe Gln Phe Asn Gly Glu Asp Asn Val Ser Glu Ala Phe
        50                  55                  60

Pro Val Glu Tyr Ile Met Arg Leu Met Ala Asn Trp Ala Gln Val Asp
65                  70                  75                  80

Cys Asp Pro Tyr Ile Lys Ile Gln Asn Thr Gly Val Ser Val Leu Phe
                85                  90                  95

Gln Gly Phe Phe Phe Arg Pro Thr Asn Ala Pro Val Ala Glu Val Ser
            100                 105                 110

Ile Asp Ser Asn Asn Val Ile Leu Ser Ser Thr Leu Ser Thr Gly Ile
            115                 120                 125

Asn Leu Ser Ala Leu Glu Ser Ile Lys Arg Gly Gly Gly Ile Asp Arg
    130                 135                 140

Arg Pro Leu Gln Ala Leu Met Trp Val Asn Cys Phe Val Arg Met Pro
145                 150                 155                 160

Tyr Val Gln Leu Ser Phe Arg Phe Met Gly Pro Glu Asp Pro Ser Arg
                165                 170                 175

Thr Ile Lys Leu Met Ala Arg Ala Thr Asp Ala Tyr Met Tyr Lys Glu
                180                 185                 190

Thr Gly Asn Asn Leu Asp Glu Tyr Ile Arg Trp Arg Pro Ser Phe Arg
            195                 200                 205

Ser Pro Pro Glu Asn Gly Ser Pro Asn Thr Ser Val Gln Met Gln Ser
    210                 215                 220

Asp Ile Lys Pro Ala Leu Pro Asp Thr Gln Thr Thr Arg Val Trp Lys
225                 230                 235                 240
```

Leu Ala Leu Pro Val Ala Asn Val Thr Tyr Ala Leu Phe Ile Val Ile
              245   250   255

Val Leu Val Val Val Leu Gly Ala Val Leu Phe Trp Lys
              260   265

<210> 67
<211> 235
<212> PRT
<213> Varicella zoster

<400> 67

Met Thr Gln Pro Ala Ser Ser Arg Val Val Phe Asp Pro Ser Asn Pro
1   5   10   15

Thr Thr Phe Ser Val Glu Ala Ile Ala Ala Tyr Thr Pro Val Ala Leu
              20   25   30

Ile Arg Leu Leu Asn Ala Ser Gly Pro Leu Gln Pro Gly His Arg Val
              35   40   45

Asp Ile Ala Asp Ala Arg Ser Ile Tyr Thr Val Gly Ala Ala Ala Ser
              50   55   60

Ala Ala Arg Ala Arg Ala Asn His Asn Ala Asn Thr Ile Arg Arg Thr
65   70   75   80

Ala Met Phe Ala Glu Thr Asp Pro Met Thr Trp Leu Arg Pro Thr Val
                    85   90   95

Gly Leu Lys Arg Thr Phe Asn Pro Arg Ile Ile Arg Pro Gln Pro Pro
              100   105   110

Asn Pro Ser Met Ser Leu Gly Ile Ser Gly Pro Thr Ile Leu Pro Gln
              115   120   125

Lys Thr Gln Ser Ala Asp Gln Ser Ala Leu Gln Gln Pro Ala Ala Leu
              130   135   140

Ala Phe Ser Gly Ser Ser Pro Gln His Pro Pro Pro Gln Thr Thr Ser
145   150   155   160

Ala Ser Val Gly Gln Gln Gln His Val Val Ser Gly Ser Ser Gly Gln
              165   170   175

Gln Pro Gln Gln Gly Ala Gln Ser Ser Thr Val Gln Pro Thr Thr Gly
              180   185   190

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```
Ser Pro Pro Ala Ala Gln Gly Val Pro Gln Ser Thr Pro Pro Pro Thr
    195                     200             205
```

```
Gln Asn Thr Pro Gln Gly Gly Lys Gly Gln Thr Leu Ser His Thr Gly
    210                 215                 220
```

```
Gln Ser Gly Asn Ala Ser Arg Ser Arg Arg Val
225                 230                 235
```

<210> 68
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<212> PRT
<213> Varicella zoster

<400> 68

```
Met Gly Ser Gln Pro Thr Asn Ser His Phe Thr Leu Asn Glu Gln Thr
1               5               10                  15
```

```
Leu Cys Gly Thr Asn Ile Ser Leu Leu Gly Asn Asn Arg Phe Ile Gln
            20              25                  30
```

```
Ile Gly Asn Gly Leu His Met Thr Tyr Ala Pro Gly Phe Phe Gly Asn
        35                  40                  45
```

```
Trp Ser Arg Asp Leu Thr Ile Gly Pro Arg Phe Gly Gly Leu Asn Lys
    50                  55                  60
```

```
Gln Pro Ile His Val Pro Pro Lys Arg Thr Glu Thr Ala Ser Ile Gln
65                  70                  75                  80
```

```
Val Thr Pro Arg Ser Ile Val Ile Asn Arg Met Asn Asn Ile Gln Ile
            85                  90                  95
```

```
Asn Pro Thr Ser Ile Gly Asn Pro Gln Val Thr Ile Arg Leu Pro Leu
            100                 105                 110
```

```
Asn Asn Phe Lys Ser Thr Thr Gln Leu Ile Gln Gln Val Ser Leu Thr
            115                 120                 125
```

```
Asp Phe Phe Arg Pro Asp Ile Glu His Ala Gly Ser Ile Val Leu Ile
    130                 135                 140
```

```
Leu Arg His Pro Ser Asp Met Ile Gly Glu Ala Asn Thr Leu Thr Gln
145                 150                 155                 160
```

```
Ala Gly Arg Asp Pro Asp Val Leu Leu Glu Gly Leu Arg Asn Leu Phe
                165                 170                 175
```

Asn Ala Cys Thr Ala Pro Trp Thr Val Gly Glu Gly Gly Leu Arg
            180   185   190

Ala Tyr Val Thr Ser Leu Ser Phe Ile Ala Ala Cys Arg Ala Glu Glu
            195   200   205

Tyr Thr Asp Lys Gln Ala Ala Asp Ala Asn Arg Thr Ala Ile Val Ser
    210   215   220

Ala Tyr Gly Cys Ser Arg Met Glu Thr Arg Leu Ile Arg Phe Ser Glu
225   230   235   240

Cys Leu Arg Ala Met Val Gln Cys His Val Phe Pro His Arg Phe Ile
            245   250   255

Ser Phe Phe Gly Ser Leu Leu Glu Tyr Thr Ile Gln Asp Asn Leu Cys
            260   265   270

Asn Ile Thr Ala Val Ala Lys Gly Pro Gln Glu Ala Ala Arg Thr Asp
            275   280   285

Lys Thr Ser Thr Arg Arg Val Thr Ala Asn Ile Pro Ala Cys Val Phe
    290   295   300

Trp Asp Val Asp Lys Asp Leu His Leu Ser Ala Asp Gly Leu Lys His
305   310   315   320

Val Phe Leu Val Phe Val Tyr Thr Gln Arg Arg Gln Arg Glu Gly Val
            325   330   335

Arg Leu His Leu Ala Leu Ser Gln Leu Asn Glu Gln Cys Phe Gly Arg
            340   345   350

Gly Ile Gly Phe Leu Leu Gly Arg Ile Arg Ala Glu Asn Ala Ala Trp
            355   360   365

Gly Thr Glu Gly Val Ala Asn Thr His Gln Pro Tyr Asn Thr Arg Ala
    370   375   380

Leu Pro Leu Val Gln Leu Ser Asn Asp Pro Thr Ser Pro Arg Cys Ser
385   390   395   400

Ile Gly Glu Ile Thr Gly Val Asn Trp Asn Leu Ala Arg Gln Arg Leu
            405   410   415

Tyr Gln Trp Thr Gly Asp Phe Arg Gly Leu Pro Thr Gln Leu Ser Cys
                            Page 378

Met Tyr Ala Ala Tyr Thr Leu Ile Gly Thr Ile Pro Ser Glu Ser Val
        435   440   445

Arg Tyr Thr Arg Arg Met Glu Arg Phe Gly Gly Tyr Asn Val Pro Thr
        450   455   460

Ile Trp Leu Glu Gly Val Val Trp Gly Gly Thr Asn Thr Trp Asn Glu
465   470   475   480

Cys Tyr Tyr

<210> 69
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<212> PRT
<213> Varicella zoster

<400> 69

Met Glu Phe Lys Arg Ile Phe Asn Thr Val His Asp Ile Ile Asn Arg
1   5   10   15

Leu Cys Gln His Gly Tyr Lys Glu Tyr Ile Ile Pro Pro Glu Ser Thr
        20   25   30

Thr Pro Val Glu Leu Met Glu Tyr Ile Ser Thr Ile Val Ser Lys Leu
        35   40   45

Lys Ala Val Thr Arg Gln Asp Glu Arg Val Tyr Arg Cys Cys Gly Glu
        50   55   60

Leu Ile His Cys Arg Ile Asn Leu Arg Ser Val Ser Met Glu Thr Trp
65   70   75   80

Leu Thr Ser Pro Ile Leu Cys Leu Thr Pro Arg Val Arg Gln Ala Ile
                85   90   95

Glu Gly Arg Arg Asp Glu Ile Arg Arg Ala Ile Leu Glu Pro Phe Leu
            100   105   110

Lys Asp Gln Tyr Pro Ala Leu Ala Thr Leu Gly Leu Gln Ser Ala Leu
        115   120   125

Lys Tyr Glu Asp Phe Tyr Leu Thr Lys Leu Glu Glu Gly Lys Leu Glu
        130   135   140

Ser Leu Cys Gln Phe Phe Leu Arg Leu Ala Ala Thr Val Thr Thr Glu

Page 379

Ile Val Asn Leu Pro Lys Ile Ala Thr Leu Ile Pro Gly Ile Asn Asp
                165   170   175

Gly Tyr Thr Trp Thr Asp Val Cys Arg Val Phe Phe Thr Ala Leu Ala
                180   185   190

Cys Gln Lys Ile Val Pro Ala Thr Pro Val Met Met Phe Leu Gly Arg
                195   200   205

Glu Thr Gly Ala Thr Ala Ser Cys Tyr Leu Met Asp Pro Glu Ser Ile
        210   215   220

Thr Val Gly Arg Ala Val Arg Ala Ile Thr Gly Asp Val Gly Thr Val
225   230   235   240

Leu Gln Ser Arg Gly Gly Val Gly Ile Ser Leu Gln Ser Leu Asn Leu
                245   250   255

Ile Pro Thr Glu Asn Gln Thr Lys Gly Leu Leu Ala Val Leu Lys Leu
                260   265   270

Leu Asp Cys Met Val Met Ala Ile Asn Ser Asp Cys Glu Arg Pro Thr
                275   280   285

Gly Val Cys Val Tyr Ile Glu Pro Trp His Val Asp Leu Gln Thr Val
        290   295   300

Leu Ala Thr Arg Gly Met Leu Val Arg Asp Glu Ile Phe Arg Cys Asp
305   310   315   320

Asn Ile Phe Cys Cys Leu Trp Thr Pro Asp Leu Phe Phe Glu Arg Tyr
                325   330   335

Leu Ser Tyr Leu Lys Gly Ala Ser Asn Val Gln Trp Thr Leu Phe Asp
                340   345   350

Asn Arg Ala Asp Ile Leu Arg Thr Leu His Gly Glu Ala Phe Thr Ser
                355   360   365

Thr Tyr Leu Arg Leu Glu Arg Glu Gly Leu Gly Val Ser Ser Val Pro
        370   375   380

Ile Gln Asp Ile Ala Phe Thr Ile Ile Arg Ser Ala Ala Val Thr Gly
385   390   395   400

```
Ser Pro Phe Leu Met Phe Lys Asp Ala Cys Asn Arg Asn Tyr His Met
            405             410                 415


Asn Thr Gln Gly Asn Ala Ile Thr Gly Ser Asn Leu Cys Thr Glu Ile
            420             425                 430


Val Gln Lys Ala Asp Ala His Gln His Gly Val Cys Asn Leu Ala Ser
            435             440                 445


Ile Asn Leu Thr Thr Cys Leu Ser Lys Gly Pro Val Ser Phe Asn Leu
        450             455             460


Asn Asp Leu Gln Leu Thr Ala Arg Thr Thr Val Ile Phe Leu Asn Gly
465             470             475             480


Val Leu Ala Ala Gly Asn Phe Pro Cys Lys Lys Ser Cys Lys Gly Val
            485             490                 495


Lys Asn Asn Arg Ser Leu Gly Ile Gly Ile Gln Gly Leu His Thr Thr
            500             505                 510


Cys Leu Arg Leu Gly Phe Asp Leu Thr Ser Gln Pro Ala Arg Arg Leu
            515             520                 525


Asn Val Gln Ile Ala Glu Leu Met Leu Tyr Glu Thr Met Lys Thr Ser
            530             535                 540


Met Glu Met Cys Lys Ile Gly Gly Leu Ala Pro Phe Lys Gly Phe Thr
545             550             555             560


Glu Ser Lys Tyr Ala Lys Gly Trp Leu His Gln Asp Gly Phe Ser Thr
            565             570                 575


Ile Ser Tyr Leu Asp Leu Pro Trp Cys Thr Leu Arg Asp Asp Ile Cys
            580             585                 590


Ala Tyr Gly Leu Tyr Asn Ser Gln Phe Leu Ala Leu Met Pro Thr Val
            595             600                 605


Ser Ser Ala Gln Val Thr Glu Cys Ser Glu Gly Phe Ser Pro Ile Tyr
            610             615                 620


Asn Asn Met Phe Ser Lys Val Thr Thr Ser Gly Glu Leu Leu Arg Pro
625             630             635             640


Asn Leu Asp Leu Met Asp Glu Leu Arg Asp Met Tyr Ser Cys Glu Glu
            645             650                 655
```

```
Lys Arg Leu Glu Val Ile Asn Ile Leu Glu Lys Asn Gln Trp Ser Val
            660             665             670

Ile Arg Ser Phe Gly Cys Leu Ser Asn Ser His Pro Leu Leu Lys Tyr
            675             680             685

Lys Thr Ala Phe Glu Tyr Glu Gln Glu Asp Leu Val Asp Met Cys Ala
            690             695             700

Glu Arg Ala Pro Phe Ile Asp Gln Ser Gln Ser Met Thr Leu Phe Ile
705             710             715             720

Glu Glu Arg Pro Asp Gly Thr Ile Pro Ala Ser Lys Ile Met Asn Leu
                725             730             735

Leu Ile Arg Ala Tyr Lys Ala Gly Leu Lys Thr Gly Met Tyr Tyr Cys
            740             745             750

Lys Ile Arg Lys Ala Thr Asn Ser Gly Leu Phe Ala Gly Gly Glu Leu
            755             760             765

Thr Cys Thr Ser Cys Ala Leu
    770             775
```

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<210>  70
<211>  306
<212>  PRT
<213>  Varicella zoster

<400>  70
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Met Asp Gln Lys Asp Cys Ser His Phe Phe Tyr Arg Pro Glu Cys Pro
1               5               10              15

Asp Ile Asn Asn Leu Arg Ala Leu Ser Ile Ser Asn Arg Trp Leu Glu
            20              25              30

Ser Asp Phe Ile Ile Glu Asp Asp Tyr Gln Tyr Leu Asp Cys Leu Thr
            35              40              45

Glu Asp Glu Leu Ile Phe Tyr Arg Phe Ile Phe Thr Phe Leu Ser Ala
    50              55              60

Ala Asp Asp Leu Val Asn Val Asn Leu Gly Ser Leu Thr Gln Leu Phe
65              70              75              80

Ser Gln Lys Asp Ile His His Tyr Tyr Ile Glu Gln Glu Cys Ile Glu
            85              90              95
```

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Val Val His Ala Arg Val Tyr Ser Gln Ile Gln Leu Met Leu Phe Arg
            100   105   110

Gly Asp Glu Ser Leu Arg Val Gln Tyr Val Asn Val Thr Ile Asn Asn
            115   120   125

Pro Ser Ile Gln Gln Lys Val Gln Trp Leu Glu Glu Lys Val Arg Asp
        130   135   140

Asn Pro Ser Val Ala Glu Lys Tyr Ile Leu Met Ile Leu Ile Glu Gly
145   150   155   160

Ile Phe Phe Val Ser Ser Phe Ala Ala Ile Ala Tyr Leu Arg Asn Asn
                165   170   175

Gly Leu Phe Val Val Thr Cys Gln Phe Asn Asp Leu Ile Ser Arg Asp
            180   185   190

Glu Ala Ile His Thr Ser Ala Ser Cys Cys Ile Tyr Asn Asn Tyr Val
            195   200   205

Pro Glu Lys Pro Ala Ile Thr Arg Ile His Gln Leu Phe Ser Glu Ala
        210   215   220

Val Glu Ile Glu Cys Ala Phe Leu Lys Ser His Ala Pro Lys Thr Arg
225   230   235   240

Leu Val Asn Val Asp Ala Ile Thr Gln Tyr Val Lys Phe Ser Ala Asp
                245   250   255

Arg Leu Leu Ser Ala Ile Asn Val Pro Lys Leu Phe Asn Thr Pro Pro
            260   265   270

Pro Asp Ser Asp Phe Pro Leu Ala Phe Met Ile Ala Asp Lys Asn Thr
            275   280   285

Asn Phe Phe Glu Arg His Ser Thr Ser Tyr Ala Gly Thr Val Ile Asn
    290   295   300

Asp Leu
305

<210> 71
<211> 408
<212> PRT
<213> Varicella zoster

<400> 71

Met Asp Leu Arg Ser Arg Thr Asp Asp Ala Leu Asp Met Glu Leu His
1   5   10   15

Ala Gly Phe Asp Ala Pro Glu Ile Ala Arg Ala Val Leu Thr Glu Lys
            20   25   30

Thr Leu Thr Gly Leu Ile Ser Ser Ile Ser Pro Leu Val Asn Arg Leu
        35   40   45

Arg Asp Ser Ile Leu Ile Phe Ser Asp Glu Gly Leu Ile Ile His Cys
    50   55   60

Ser Leu Glu Thr Glu Gln Leu Tyr Ile Pro Ile Pro Ala Asn Met Phe
65   70   75   80

Asp Gln Tyr Asn Trp Thr Gly Pro Arg Met Val Val Leu Ala Ala Thr
            85   90   95

Glu Gly Arg Ser Ser Leu Ile Asp Ala Phe Arg His Thr Lys Asp Pro
            100   105   110

Ser Thr Pro Thr Arg Leu Tyr Phe Lys Phe Thr Gly Gln Pro Pro Glu
        115   120   125

Arg Ser Ile Ile Gln Thr Met Val Trp Gln Arg Pro Gly Asp Cys Gly
    130   135   140

Pro Asp Asp Gln Val Gln Cys Tyr Lys Gln Val Val Lys Arg Glu Leu
145   150   155   160

Ala Cys Tyr Thr Met Met Phe Pro Asn Leu Thr Pro Asp Ile Ser Ile
            165   170   175

Cys Leu Lys Arg Asp Gln Phe Thr Arg Leu Gln Arg Leu Leu Lys Thr
            180   185   190

Phe Gly Phe Thr Thr Cys Phe Ile Leu Thr Ala Thr Asp Met Tyr Ile
            195   200   205

Gln Thr Ala Gly Gly Gly Phe Ile Ser Phe Asn Val Ser Leu Asp Ile
    210   215   220

Asn Gly Ser Lys Pro Thr Pro Tyr Asn Leu Ile Arg Ser Ile Thr Asn
225   230   235   240

Ser Lys Arg Ile Leu Asn Asn Val Val Tyr Gly Ser Gly Ser Met Arg
            245   250   255

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```
Glu Phe Gly Val Leu Leu Glu Thr His Ser Gly Phe Arg Ser Ala Val
            260                 265                 270

Gln Asn Leu Lys Leu Thr Arg Asp Glu Thr Cys Tyr Ile Asn Phe Tyr
            275                 280                 285

Leu Ala Leu Thr Asn Ser Pro Met Val Gly Leu Tyr Ile Gln Arg Ser
            290                 295                 300

Ala Pro Val His Ser Phe Phe Tyr Ala Thr Phe Leu Ser Pro Lys Asp
305                 310                 315                 320

Leu Lys Glu Lys Leu Thr Ser Met Gln Leu Phe Ala Asn Met Glu Ser
            325                 330                 335

Val Lys Asp Glu Pro Pro Leu Lys Lys Arg Arg Asn Leu Leu Thr Lys
            340                 345                 350

Arg Asn Glu Lys Asn Thr Gly Asn Lys Met Gly Gly Lys Leu Pro Glu
            355                 360                 365

Thr Thr Trp Gln Glu Gly Ile Gly Ile Arg Glu Tyr Cys Val Ala Pro
    370                 375                 380

Pro Val Asp Pro Ala Gly Thr Leu Asp Tyr Ser Glu Leu Ser Arg Glu
385                 390                 395                 400

Ser Asp Val Ile Cys Thr Val Lys
                405
```

<210> 72
<211> 406
<212> PRT
<213> Varicella zoster

<400> 72

```
Met Ala Val Asn Gly Glu Arg Ala Val His Asp Glu Asn Leu Gly Val
1               5                   10                  15

Leu Asp Arg Glu Leu Ile Arg Ala Gln Ser Ile Gln Gly Cys Val Gly
            20                  25                  30

Asn Pro Gln Glu Cys Asn Ser Cys Ala Ile Thr Ser Ala Ser Arg Leu
            35                  40                  45

Phe Leu Val Gly Leu Gln Ala Ser Val Ile Thr Ser Gly Leu Ile Leu
    50                  55                  60
```

Gln Tyr His Val Cys Glu Ala Ala Val Asn Ala Thr Ile Met Gly Leu
65   70   75   80

Ile Val Val Ser Gly Leu Trp Pro Thr Ser Val Lys Phe Leu Arg Thr
                85   90   95

Leu Ala Lys Leu Gly Arg Cys Leu Gln Thr Val Val Val Leu Gly Phe
            100   105   110

Ala Val Leu Trp Ala Val Gly Cys Pro Ile Ser Arg Asp Leu Pro Phe
            115   120   125

Val Glu Leu Leu Gly Ile Ser Ile Ser Ala Ile Thr Gly Thr Val Ala
        130   135   140

Ala Val His Ile His Tyr Tyr Asn Phe Val Thr Thr Phe Asn Gly Pro
145   150   155   160

His Ile Tyr Phe Tyr Val Met Met Leu Gly Thr Gly Leu Gly Gly Leu
            165   170   175

Leu Thr Val Ile Leu Tyr Met Tyr Val Ser Lys Tyr Glu Val Leu Ile
            180   185   190

Gly Leu Cys Ile Ser Ile Val Thr Leu Val Ser Ile Val Asp Ala Ala
            195   200   205

Thr Asp Leu Gln Asp Thr Cys Ile Tyr Arg Lys Asn Arg His Lys Gln
        210   215   220

Leu Asn Thr Tyr Thr Asp Leu Gly Phe Ala Val Val Tyr Thr Gln Asn
225   230   235   240

Asp Arg Gly Arg Val Cys Asp His Arg Glu Ser Ser Arg Thr Leu Lys
            245   250   255

Arg Val Phe Lys Gly Ile Arg Ile Met Ser Val Ile Pro Pro Val Leu
            260   265   270

Tyr Ile Val Thr Pro Leu Met Trp Ala Ile Ser His Ile Ile Lys Leu
            275   280   285

Asn His Phe Ile Lys Leu Thr Gln Val Thr Leu Ala Val Ser Ile Gly
    290   295   300

Gly His Ile Ile Ala Phe Gly Leu Gln Gly Phe Ala Val Leu Tyr Gln
                    Page 386

305   310   315   320

Glu Lys Lys Asn Leu Trp Val Ile Val Leu Tyr Thr Thr Thr Ser Val
                325   330   335

Thr Gly Ile Ala Val Thr Phe Ala Gly Ile Ser Trp Gly Ala Ile Ile
                340   345   350

Ile Leu Thr Ser Thr Val Ala Ala Gly Leu Thr Cys Ile Gln Met Met
                355   360   365

Arg Leu Ser Val Lys Pro Ile Asp Cys Phe Met Ala Ser His Ile Thr
        370   375   380

Lys Val Tyr His Val Cys Val Tyr Ile Ile Ile Asn Leu Cys Tyr Leu
385   390   395   400

Cys Gly Thr Tyr Val Ser
                405

<210> 73
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<212> PRT
<213> Varicella zoster

<400> 73

Met Lys Arg Ile Gln Ile Asn Leu Ile Leu Thr Ile Ala Cys Ile Gln
1   5   10   15

Leu Ser Thr Glu Ser Gln Pro Thr Pro Val Ser Ile Thr Glu Leu Tyr
                20   25   30

Thr Ser Ala Ala Thr Arg Lys Pro Asp Pro Ala Val Ala Pro Thr Ser
                35   40   45

Ala Ala Ser Arg Lys Pro Asp Pro Ala Val Ala Pro Thr Ser Ala Ala
        50   55   60

Ser Arg Lys Pro Asp Pro Ala Val Ala Pro Thr Ser Ala Ala Ser Arg
65   70   75   80

Lys Pro Asp Pro Ala Val Ala Pro Thr Ser Ala Ala Thr Arg Lys Pro
                85   90   95

Asp Pro Ala Val Ala Pro Thr Ser Ala Ala Ser Arg Lys Pro Asp Pro
                100   105   110

Ala Val Ala Pro Thr Ser Ala Ala Thr Arg Lys Pro Asp Pro Ala Val

115   120   125

Ala Pro Thr Ser Ala Ala Ser Arg Lys Pro Asp Pro Ala Ala Asn Thr
    130   135   140

Gln His Ser Gln Pro Pro Phe Leu Tyr Glu Asn Ile Gln Cys Val His
145   150   155   160

Gly Gly Ile Gln Ser Ile Pro Tyr Phe His Thr Phe Ile Met Pro Cys
                165   170   175

Tyr Met Arg Leu Thr Thr Gly Gln Gln Ala Ala Phe Lys Gln Gln Gln
                180   185   190

Lys Thr Tyr Glu Gln Tyr Ser Leu Asp Pro Glu Gly Ser Asn Ile Thr
                195   200   205

Arg Trp Lys Ser Leu Ile Arg Pro Asp Leu His Ile Glu Val Trp Phe
    210   215   220

Thr Arg His Leu Ile Asp Pro His Arg Gln Leu Gly Asn Ala Leu Ile
225   230   235   240

Arg Met Pro Asp Leu Pro Val Met Leu Tyr Ser Asn Ser Ala Asp Leu
                245   250   255

Asn Leu Ile Asn Asn Pro Glu Ile Phe Thr His Ala Lys Glu Asn Tyr
                260   265   270

Val Ile Pro Asp Val Lys Thr Thr Ser Asp Phe Ser Val Thr Ile Leu
                275   280   285

Ser Met Asp Ala Thr Thr Glu Gly Thr Tyr Ile Trp Arg Val Val Asn
    290   295   300

Thr Lys Thr Lys Asn Val Ile Ser Glu His Ser Ile Thr Val Thr Thr
305   310   315   320

Tyr Tyr Arg Pro Asn Ile Thr Val Val Gly Asp Pro Val Leu Thr Gly
                325   330   335

Gln Thr Tyr Ala Ala Tyr Cys Asn Val Ser Lys Tyr Tyr Pro Pro His
                340   345   350

Ser Val Arg Val Arg Trp Thr Ser Arg Phe Gly Asn Ile Gly Lys Asn
    355   360   365

Phe Ile Thr Asp Ala Ile Gln Glu Tyr Ala Asn Gly Leu Phe Ser Tyr
    370   375   380

Val Ser Ala Val Arg Ile Pro Gln Gln Lys Gln Met Asp Tyr Pro Pro
385   390   395   400

Pro Ala Ile Gln Cys Asn Val Leu Trp Ile Arg Asp Gly Val Ser Asn
                405   410   415

Met Lys Tyr Ser Ala Val Val Thr Pro Asp Val Tyr Pro Phe Pro Asn
                420   425   430

Val Ser Ile Gly Ile Ile Asp Gly His Ile Val Cys Thr Ala Lys Cys
            435   440   445

Val Pro Arg Gly Val Val His Phe Val Trp Trp Val Asn Asp Ser Pro
    450   455   460

Ile Asn His Glu Asn Ser Glu Ile Thr Gly Val Cys Asp Gln Asn Lys
465   470   475   480

Arg Phe Val Asn Met Gln Ser Ser Cys Pro Thr Ser Glu Leu Asp Gly
                485   490   495

Pro Ile Thr Tyr Ser Cys His Leu Asp Gly Tyr Pro Lys Lys Phe Pro
            500   505   510

Pro Phe Ser Ala Val Tyr Thr Tyr Asp Ala Ser Thr Tyr Ala Thr Thr
            515   520   525

Phe Ser Val Val Ala Val Ile Ile Gly Val Ile Ser Ile Leu Gly Thr
    530   535   540

Leu Gly Leu Ile Ala Val Ile Ala Thr Leu Cys Ile Arg Cys Cys Ser
545   550   555   560

<210>   74
<211>   396
<212>   PRT
<213>   Varicella zoster

<400>   74

Met Asn Glu Ala Val Ile Asp Pro Ile Leu Glu Thr Ala Val Asn Thr
1   5   10   15

Gly Asp Met Phe Cys Ser Gln Thr Ile Pro Asn Arg Cys Leu Lys Asp
                20   25   30

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Thr Ile Leu Ile Glu Val Gln Pro Glu Cys Ala Asp Thr Leu Gln Cys
        35   40   45

Val Leu Asp Asp Lys Val Ser Arg His Gln Pro Leu Leu Leu Arg Asn
    50   55   60

His Lys Lys Leu Glu Leu Pro Ser Glu Lys Ser Val Thr Arg Gly Gly
65   70   75   80

Phe Tyr Met Gln Gln Leu Glu Leu Leu Val Lys Ser Ala Pro Pro Asn
            85   90   95

Glu Tyr Ala Leu Leu Leu Ile Gln Cys Lys Asp Thr Ala Leu Ala Asp
        100   105   110

Glu Asp Asn Phe Phe Val Ala Asn Gly Val Ile Asp Ala Gly Tyr Arg
        115   120   125

Gly Val Ile Ser Ala Leu Leu Tyr Tyr Arg Pro Gly Val Thr Val Ile
    130   135   140

Leu Pro Gly His Leu Thr Ile Tyr Leu Phe Pro Val Lys Leu Arg Gln
145   150   155   160

Ser Arg Leu Leu Pro Lys Asn Val Leu Lys His Leu Asp Pro Ile Phe
            165   170   175

Lys Ser Ile Gln Val Gln Pro Leu Ser Asn Ser Pro Ser Asn Tyr Glu
            180   185   190

Lys Pro Val Ile Pro Glu Phe Ala Asp Ile Ser Thr Val Gln Gln Gly
        195   200   205

Gln Pro Leu His Arg Asp Ser Ala Glu Tyr His Ile Asp Val Pro Leu
    210   215   220

Thr Tyr Lys His Ile Ile Asn Pro Lys Arg Gln Glu Asp Ala Gly Tyr
225   230   235   240

Asp Ile Cys Val Pro Tyr Asn Leu Tyr Leu Lys Arg Asn Glu Phe Ile
            245   250   255

Lys Ile Val Leu Pro Ile Ile Arg Asp Trp Asp Leu Gln His Pro Ser
        260   265   270

Ile Asn Ala Tyr Ile Phe Gly Arg Ser Ser Lys Ser Arg Ser Gly Ile
        275   280   285

```
Ile Val Cys Pro Thr Ala Trp Pro Ala Gly Glu His Cys Lys Phe Tyr
    290             295             300

Val Tyr Asn Leu Thr Gly Asp Asp Ile Arg Ile Lys Thr Gly Asp Arg
305             310             315             320

Leu Ala Gln Val Leu Leu Ile Asp His Asn Thr Gln Ile His Leu Lys
                325             330             335

His Asn Val Leu Ser Asn Ile Ala Phe Pro Tyr Ala Ile Arg Gly Lys
            340             345             350

Cys Gly Ile Pro Gly Val Gln Trp Tyr Phe Thr Lys Thr Leu Asp Leu
        355             360             365

Ile Ala Thr Pro Ser Glu Arg Gly Thr Arg Gly Phe Gly Ser Thr Asp
    370             375             380

Lys Glu Thr Asn Asp Val Asp Phe Leu Leu Lys His
385             390             395
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<212> PRT
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<400> 75

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Met Asp Lys Ser Ser Lys Pro Thr Ile Arg Leu Leu Phe Ala Thr Lys
1               5               10              15

Gly Cys Ala Ile Ser His Ser Leu Leu Leu Thr Gly Gln Ile Ser
            20              25              30

Thr Glu Pro Leu Tyr Val Val Ser Tyr Thr Trp Thr Pro Asp Leu Asp
        35              40              45

Asp Val Phe Val Lys Asn Gly Arg Glu Glu Ile Thr Gln Val Ile Pro
    50              55              60

Thr Lys Arg Pro Arg Glu Val Thr Glu Asn Asp Glu Glu Asn Gln Ile
65              70              75              80

Met His Leu Phe Cys Ser Arg Asp Val Asn Val Ile Phe Tyr Leu Ile
                85              90              95

Gly Gly Phe Ser Thr Gly Asp Val Arg Ser Arg Val Trp Pro Ile Phe
            100             105             110
```

Phe Cys Cys Phe Lys Thr Gln Thr Asp Phe Lys Ala Leu Tyr Lys Ala
        115   120   125

Leu Trp Tyr Gly Ala Pro Leu Asn Pro His Ile Ile Ser Asp Thr Leu
        130   135   140

Cys Ile Ser Glu Thr Phe Asp Ile His Ser Glu Val Ile Gln Thr Leu
145   150   155   160

Met Val Thr Thr His His Leu Asn Arg Lys Gly Leu Ser Asp Asn Gly
                165   170   175

Leu Cys Ile Thr Glu Ala Thr Leu Cys Lys Leu Val Lys Lys Ser Val
            180   185   190

Gly Arg Gln Glu Leu Thr Ser Leu Tyr Ala His Tyr Glu Arg Gln Val
        195   200   205

Leu Ala Ala Tyr Arg Arg Leu Tyr Trp Gly Tyr Gly Cys Ser Pro Phe
    210   215   220

Trp Tyr Ile Val Arg Phe Gly Pro Ser Glu Lys Thr Leu Val Leu Ala
225   230   235   240

Thr Arg Tyr Tyr Leu Leu Gln Thr Asp Thr Ser Tyr Asn Thr Leu Glu
            245   250   255

Thr Pro Leu Tyr Asp Leu Gln Ala Ile Lys Asp Leu Phe Leu Thr Tyr
            260   265   270

Gln Val Pro Ala Leu Pro Asn Cys Ser Gly Tyr Asn Ile Ser Asp Leu
        275   280   285

Leu Ser Phe Asp Lys Leu Ser Met Phe Cys Cys Ser Ser Thr Tyr Thr
    290   295   300

Arg Gly Leu Thr Ala Lys Asn Ala Leu Ser Tyr Ile Leu Gln Arg Ile
305   310   315   320

His Thr Asp Thr Thr Glu Ile His Ala Val Ser Glu Tyr Ile Thr Asn
            325   330   335

Asp Arg Lys Gly Leu Lys Val Pro Asp Arg Glu Phe Val Asp Tyr Ile
            340   345   350

Tyr Leu Ala His Phe Glu Cys Phe Asn Arg Lys Gln Ile Ala Asp His
    355   360   365

Page 392

Leu Gln Ala Val Thr Tyr Ser Asp Phe Val Asn Lys Pro Val Leu Leu
370   375   380

Lys Ser Ser Asn Leu Gly Lys Arg Ala Thr Ala Asn Phe Phe Asn His
385   390   395   400

Val Arg Ser Arg Leu Asn Met Arg Asp Tyr Ile Lys Lys Asn Val Ile
                405   410   415

Cys Asp Val Thr Glu Leu Gly Pro Glu Ile Gly His Lys Tyr Thr Ile
                420   425   430

Thr Lys Thr Tyr Thr Leu Ser Leu Thr Tyr Ala Ala Lys Pro Ser Lys
            435   440   445

Phe Ile Gly Val Cys Asp Leu Ala Thr Thr Leu Thr Arg Arg Val Glu
    450   455   460

Asn Ile Glu Lys Gln Phe Ser Pro Tyr Gly Trp Ser Ser Thr Ile Pro
465   470   475   480

Ser Asn Pro Pro Gly Phe Asp Glu Leu Ser Asn Phe Glu Asp Ser Gly
                485   490   495

Val Ser Ala Glu Ala Leu Arg Ala Ala Asn Phe Ala Asn Asp Thr Pro
                500   505   510

Asn Gln Ser Gly Arg Thr Gly Phe Asp Thr Ser Pro Gly Ile Thr Lys
            515   520   525

Leu Leu Leu Phe Phe Ser Ala Ala Thr Gly Ile Ala Thr His Asp Val
    530   535   540

Ser Ile Leu Ser Tyr Lys Thr Pro Leu Glu Ala Leu Ile Gly His Ser
545   550   555   560

Glu Val Thr Gly Pro Met Pro Val Tyr Arg Val Ala Leu Pro His Gly
                565   570   575

Ala Gln Ala Phe Ala Val Ile Ala Asn Asp Thr Trp Ser Ser Ile Thr
                580   585   590

Asn Arg Tyr Thr Leu Pro His Glu Ala Arg Leu Ile Ala Glu Asp Leu
            595   600   605

Lys Gln Ile Asn Pro Cys Asn Phe Val Ala Ala Ser Leu Arg Asp Met
                Page 393

```
              610                    615                    620
```

Gln Leu Thr Leu Leu Leu Ser Thr Ser Val Lys Asn Val Ser Lys Ile
625   630   635   640

Ser Ser Asn Ile Pro Lys Asp Gln Leu Tyr Ile Asn Arg Asn Glu Leu
                    645   650   655

Phe Asn Thr Asn Leu Ile Ile Thr Asn Leu Ile Leu Asp Val Asp Phe
                660   665   670

His Ile Arg Lys Pro Ile Pro Leu Gly Ile Leu His Ala Gly Met Arg
            675   680   685

Ala Phe Arg His Gly Ile Leu Thr Ala Met Gln Leu Leu Phe Pro Lys
        690   695   700

Ala Val Val Asn Pro Asn Lys Asp Pro Cys Tyr Phe Tyr Lys Thr Ala
705   710   715   720

Cys Pro Glu Pro Thr Val Glu Val Leu Asp Asp Asn Leu Leu Asp
                    725   730   735

Ile Thr Ser His Ser Asp Ile Asp Phe Tyr Ile Glu Asn Gly Glu Leu
                740   745   750

Tyr Thr Cys Val Glu Glu Asn Tyr Thr Glu Asp Val Trp Phe Phe Asp
            755   760   765

Thr Gln Thr Thr Ser Glu Val His Thr His Ala Asp Val Ser Asn Asn
        770   775   780

Glu Asn Leu His Glu Thr Leu Pro Cys Asn Cys Lys Glu Lys Ile Gly
785   790   795   800

Phe Arg Val Cys Val Pro Ile Pro Asn Pro Tyr Ala Leu Val Gly Ser
                805   810   815

Ser Thr Leu Lys Gly Phe Ala Gln Ile Leu Gln Gln Ala Val Leu Leu
            820   825   830

Glu Arg Glu Phe Val Glu Tyr Ile Gly Pro Tyr Leu Arg Asp Phe Ser
            835   840   845

Phe Ile Asp Thr Gly Val Tyr Ser His Gly His Ser Leu Arg Leu Pro
        850   855   860

Phe Phe Ser Lys Val Thr Thr Thr Gly Thr Ala Val Gly Gln Leu Leu
865   870   875   880

Pro Phe Tyr Val Val Pro Glu Gln Cys Ile Asp Ile Leu Ala Phe Val
                885   890   895

Thr Ser His Arg Asn Pro Ala Asn Phe His Phe His Ser Arg Pro Gln
            900   905   910

Ser Asn Val Pro Val Gln Phe Ile Leu His Asn Leu Gly Gly Glu Tyr
        915   920   925

Ala Glu Phe Phe Glu Arg Lys Val Ala Arg Asn Lys Gln Ile Phe Ser
    930   935   940

Ser Pro Gln Ile Ser Leu Thr Lys Ala Leu Lys Glu Arg Gly Val Thr
945   950   955   960

Cys Leu Asp Ala Phe Thr Leu Glu Ala Phe Val Asp Ser Thr Ile Leu
            965   970   975

Glu Ser Ile Val Glu His Ile Ala Val His Phe Pro Gly Arg Asp Arg
            980   985   990

Glu Tyr Thr Leu Thr Ser Ser Lys Cys Ile Ala Ile Lys Arg Asp Trp
        995   1000   1005

Val Leu Phe Gln Leu Ile Cys Gly Thr Lys Gly Phe Thr Cys Leu
    1010   1015   1020

Arg Tyr Pro His Arg Gly Gly Arg Thr Ala Pro Arg Thr Phe Val
    1025   1030   1035

Ser Leu Arg Val Asp His His Asn Arg Leu Cys Ile Ser Leu Ala
    1040   1045   1050

Gln Gln Cys Phe Ala Thr Lys Cys Asp Ser Asn Arg Met His Thr
    1055   1060   1065

Ile Phe Thr Leu Glu Val Pro Asn Tyr Pro Asn Leu Thr Ser Ser
    1070   1075   1080

<210> 76
<211> 340
<212> PRT
<213> Varicella zoster

<400> 76

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Met Gln Ala Leu Gly Ile Lys Thr Glu His Phe Ile Ile Met Cys Leu
1               5               10                      15

Leu Ser Gly His Ala Val Phe Thr Leu Trp Tyr Thr Ala Arg Val Lys
        20              25                      30

Phe Glu His Glu Cys Val Tyr Ala Thr Thr Val Ile Asn Gly Gly Pro
        35              40                      45

Val Val Trp Gly Ser Tyr Asn Asn Ser Leu Ile Tyr Val Thr Phe Val
        50              55                      60

Asn His Ser Thr Phe Leu Asp Gly Leu Ser Gly Tyr Asp Tyr Ser Cys
65                  70              75                      80

Arg Glu Asn Leu Leu Ser Gly Asp Thr Met Val Lys Thr Ala Ile Ser
                85              90                      95

Thr Pro Leu His Asp Lys Ile Arg Ile Val Leu Gly Thr Arg Asn Cys
                100             105                     110

His Ala Tyr Phe Trp Cys Val Gln Leu Lys Met Ile Phe Phe Ala Trp
                115             120                     125

Phe Val Tyr Gly Met Tyr Leu Gln Phe Arg Arg Ile Arg Arg Met Phe
        130             135                     140

Gly Pro Phe Arg Ser Ser Cys Glu Leu Ile Ser Pro Thr Ser Tyr Ser
145             150             155                     160

Leu Asn Tyr Val Thr Arg Val Ile Ser Asn Ile Leu Leu Gly Tyr Pro
                165             170                     175

Tyr Thr Lys Leu Ala Arg Leu Leu Cys Asp Val Ser Met Arg Arg Asp
                180             185                     190

Gly Met Ser Lys Val Phe Asn Ala Asp Pro Ile Ser Phe Leu Tyr Met
        195             200             205

His Lys Gly Val Thr Leu Leu Met Leu Leu Glu Val Ile Ala His Ile
        210             215                     220

Ser Ser Gly Cys Ile Val Leu Leu Thr Leu Gly Val Ala Tyr Thr Pro
225                 230             235                     240

Cys Ala Leu Leu Tyr Pro Thr Tyr Ile Arg Ile Leu Ala Trp Val Val
                245             250                     255
```

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Val Cys Thr Leu Ala Ile Val Glu Leu Ile Ser Tyr Val Arg Pro Lys
        260   265   270

Pro Thr Lys Asp Asn His Leu Asn His Ile Asn Thr Gly Gly Ile Arg
        275   280   285

Gly Ile Cys Thr Thr Cys Cys Ala Thr Val Met Ser Gly Leu Ala Ile
        290   295   300

Lys Cys Phe Tyr Ile Val Ile Phe Ala Ile Ala Val Val Ile Phe Met
305   310   315   320

His Tyr Glu Gln Arg Val Gln Val Ser Leu Phe Gly Glu Ser Glu Asn
                325   330   335

Ser Gln Lys His
            340

<210> 77
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<212> PRT
<213> Varicella zoster

<400> 77

Met Ala Ser Ala Ser Ile Pro Thr Asp Pro Asp Val Ser Thr Ile Cys
1   5   10   15

Glu Asp Phe Met Asn Leu Leu Pro Asp Glu Pro Ser Asp Asp Phe Ala
            20   25   30

Leu Glu Val Thr Asp Trp Ala Asn Asp Glu Ala Ile Gly Ser Thr Pro
        35   40   45

Gly Glu Asp Ser Thr Thr Ser Arg Thr Val Tyr Val Glu Arg Thr Ala
        50   55   60

Asp Thr Ala Tyr Asn Pro Arg Tyr Ser Lys Arg Arg His Gly Arg Arg
65   70   75   80

Glu Ser Tyr His His Asn Arg Pro Lys Thr Leu Val Val Val Leu Pro
                85   90   95

Asp Ser Asn His His Gly Gly Arg Asp Val Glu Thr Gly Tyr Ala Arg
            100   105   110

Ile Glu Arg Gly His Arg Arg Ser Ser Arg Ser Tyr Asn Thr Gln Ser
        115   120   125

Page 397

Ser Arg Lys His Arg Asp Arg Ser Leu Ser Asn Arg Arg Arg Arg Pro
130   135   140

Thr Thr Pro Pro Ala Met Thr Thr Gly Glu Arg Asn Asp Gln Thr His
145   150   155   160

Asp Glu Ser Tyr Arg Leu Arg Phe Ser Lys Arg Asp Ala Arg Arg Glu
                165   170   175

Arg Ile Arg Lys Glu Tyr Asp Ile Pro Val Asp Arg Ile Thr Gly Arg
                180   185   190

Ala Ile Glu Val Val Ser Thr Ala Gly Ala Ser Val Thr Ile Asp Ser
                195   200   205

Val Arg His Leu Asp Glu Thr Ile Glu Lys Leu Val Val Arg Tyr Ala
        210   215   220

Thr Ile Gln Glu Gly Asp Ser Trp Ala Ser Gly Gly Cys Phe Pro Gly
225   230   235   240

Ile Lys Gln Asn Thr Ser Trp Pro Glu Leu Met Leu Tyr Gly His Glu
                245   250   255

Leu Tyr Arg Thr Phe Glu Ser Tyr Lys Met Asp Ser Arg Ile Ala Arg
                260   265   270

Ala Leu Arg Glu Arg Val Ile Arg Gly Glu Ser Leu Ile Glu Ala Leu
        275   280   285

Glu Ser Ala Asp Glu Leu Leu Thr Trp Ile Lys Met Leu Ala Ala Lys
290   295   300

Asn Leu Pro Ile Tyr Thr Asn Asn Pro Ile Val Ala Thr Ser Lys Ser
305   310   315   320

Leu Leu Glu Asn Leu Lys Leu Lys Leu Gly Pro Phe Val Arg Cys Leu
                325   330   335

Leu Leu Asn Arg Asp Asn Asp Leu Gly Ser Arg Thr Leu Pro Glu Leu
                340   345   350

Leu Arg Gln Gln Arg Phe Ser Asp Ile Thr Cys Ile Thr Thr Tyr Met
        355   360   365

Phe Val Met Ile Ala Arg Ile Ala Asn Ile Val Val Arg Gly Ser Lys
370   375   380

```
Phe Val Glu Tyr Asp Asp Ile Ser Cys Asn Val Gln Val Leu Gln Glu
385             390             395             400
```

```
Tyr Thr Pro Gly Ser Cys Leu Ala Gly Val Leu Glu Ala Leu Ile Thr
            405             410             415
```

```
His Gln Arg Glu Cys Gly Arg Val Glu Cys Thr Leu Ser Thr Trp Ala
            420             425             430
```

```
Gly His Leu Ser Asp Ala Arg Pro Tyr Gly Lys Tyr Phe Lys Cys Ser
        435             440             445
```

```
Thr Phe Asn Cys
        450
```

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<210>   78
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<212>   PRT
<213>   Varicella zoster

<400>   78
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Met Asp Thr Thr Gly Ala Ser Glu Ser Ser Gln Pro Ile Arg Val Asn
1               5               10              15
```

```
Leu Lys Pro Asp Pro Leu Ala Ser Phe Thr Gln Val Ile Pro Pro Leu
            20              25              30
```

```
Ala Leu Glu Thr Thr Trp Thr Cys Pro Ala Asn Ser His Ala Pro Thr
            35              40              45
```

```
Pro Ser Pro Leu Tyr Gly Val Lys Arg Leu Cys Ala Leu Arg Ala Thr
    50              55              60
```

```
Cys Gly Arg Ala Asp Asp Leu His Ala Phe Leu Ile Gly Leu Gly Arg
65              70              75              80
```

```
Arg Asp Lys Pro Ser Glu Ser Pro Met Tyr Val Asp Leu Gln Pro Phe
            85              90              95
```

```
Cys Ser Leu Leu Asn Ser Gln Arg Leu Leu Pro Glu Met Ala Asn Tyr
            100             105             110
```

```
Asn Thr Leu Cys Asp Ala Pro Phe Ser Ala Ala Thr Gln Gln Met Met
    115             120             125
```

```
Leu Glu Ser Gly Gln Leu Gly Val His Leu Ala Ala Ile Gly Tyr His
    130             135             140
```

Cys His Cys Lys Ser Pro Phe Ser Ala Glu Cys Trp Thr Gly Ala Ser
145   150   155   160

Glu Ala Tyr Asp His Val Val Cys Gly Gly Lys Ala Arg Ala Ala Val
                165   170   175

Gly Gly Leu

<210>   79
<211>   108
<212>   PRT
<213>   Varicella zoster

<400>   79

Met Ser Arg Val Ser Glu Tyr Gly Val Pro Glu Gly Val Arg Glu Ser
1   5   10   15

Asp Ser Asp Thr Asp Ser Val Phe Met Tyr Gln His Thr Glu Leu Met
                20   25   30

Gln Asn Asn Ala Ser Pro Leu Val Val Gln Thr Arg Pro Pro Ala Val
                35   40   45

Leu Ile Pro Leu Val Asp Val Pro Arg Pro Arg Ser Arg Arg Lys Ala
        50   55   60

Ser Ala Gln Leu Lys Met Gln Met Asp Arg Leu Cys Asn Val Leu Gly
65   70   75   80

Val Val Leu Gln Met Ala Thr Leu Ala Leu Val Thr Tyr Ile Ala Phe
                85   90   95

Val Val His Thr Arg Ala Thr Ser Cys Lys Arg Glu
                100   105

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Met Ser Leu Ile Met Phe Gly Arg Thr Leu Gly Glu Glu Ser Val Arg
1               5                   10                  15

tat ttt gaa cgt cta aag cgt cgt agg gat gaa cgc ttt ggg acg ttg        96
Tyr Phe Glu Arg Leu Lys Arg Arg Arg Asp Glu Arg Phe Gly Thr Leu
                20                  25                  30

gag tcc cct acc ccg tgt tcc acg cgg caa ggg tct ctg gga aac gca       144
Glu Ser Pro Thr Pro Cys Ser Thr Arg Gln Gly Ser Leu Gly Asn Ala
            35                  40                  45

acc caa atc ccg ttt ctg aat ttt gct ata gat gta acc cga cgt cat       192
Thr Gln Ile Pro Phe Leu Asn Phe Ala Ile Asp Val Thr Arg Arg His
        50                  55                  60

cag gcc gtt att ccc gga att gga acg ctt cac aac tgt tgt gaa tat       240
Gln Ala Val Ile Pro Gly Ile Gly Thr Leu His Asn Cys Cys Glu Tyr
65                  70                  75                  80

att cca ctg ttc tcg gct act gct cga cgg gca atg ttt ggc gcg ttt       288
Ile Pro Leu Phe Ser Ala Thr Ala Arg Arg Ala Met Phe Gly Ala Phe
                85                  90                  95

cta tcg tca aca ggg tac aac tgt acc ccc aat gta gtt ttg aaa cca       336
Leu Ser Ser Thr Gly Tyr Asn Cys Thr Pro Asn Val Val Leu Lys Pro
                100                 105                 110

tgg cga tat tcg gta aat gca aac gta agc cct gaa tta aaa aag gct       384
Trp Arg Tyr Ser Val Asn Ala Asn Val Ser Pro Glu Leu Lys Lys Ala
                115                 120                 125

gtc agt agt gta cag ttt tat gaa tat tca ccg gaa gaa gca gca cct       432
Val Ser Ser Val Gln Phe Tyr Glu Tyr Ser Pro Glu Glu Ala Ala Pro
        130                 135                 140

cat cga aat gcg tat agc ggt gtt atg aac aca ttt cgc gcg ttt tct       480
His Arg Asn Ala Tyr Ser Gly Val Met Asn Thr Phe Arg Ala Phe Ser
145                 150                 155                 160

ctg tcg gat agt ttc tgt cag ttg tct acc ttt aca caa cgg ttt tcg       528
Leu Ser Asp Ser Phe Cys Gln Leu Ser Thr Phe Thr Gln Arg Phe Ser
                165                 170                 175

tac ctt gtg gaa aca tct ttt gag agt att gaa gag tgt gga agt cat       576
Tyr Leu Val Glu Thr Ser Phe Glu Ser Ile Glu Glu Cys Gly Ser His
                180                 185                 190

ggc aaa cgc gca aag gtt gac gtt cca atc tat ggc aga tat aag ggg       624
Gly Lys Arg Ala Lys Val Asp Val Pro Ile Tyr Gly Arg Tyr Lys Gly
        195                 200                 205

acg ttg gaa ctg ttt caa aaa atg atc ctc atg cac acc acg cat ttt       672
Thr Leu Glu Leu Phe Gln Lys Met Ile Leu Met His Thr Thr His Phe
        210                 215                 220

att tca tcg gtg cta ttg ggc gat cat gcc gac aga gtt gac tgc ttt       720
Ile Ser Ser Val Leu Leu Gly Asp His Ala Asp Arg Val Asp Cys Phe
225                 230                 235                 240

ctg cgt aca gtg ttt aac acg cca agt gtt tct gac agt gtt tta gaa       768
Leu Arg Thr Val Phe Asn Thr Pro Ser Val Ser Asp Ser Val Leu Glu
```

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                    245                    250                        255

cac ttc aaa caa aaa tca act gtg ttt ttg gta cca cgt aga cat ggg       816
His Phe Lys Gln Lys Ser Thr Val Phe Leu Val Pro Arg Arg His Gly
            260                    265                    270

aaa aca tgg ttt ctt gta cca tta ata gct tta gta atg gcc acg ttt       864
Lys Thr Trp Phe Leu Val Pro Leu Ile Ala Leu Val Met Ala Thr Phe
            275                    280                    285

aga gga att aaa gtg ggt tat acg gct cat ata cgc aaa gca acg gaa       912
Arg Gly Ile Lys Val Gly Tyr Thr Ala His Ile Arg Lys Ala Thr Glu
            290                    295                    300

ccc gtg ttt gag ggt atc aag tct cgc ctg gaa cag tgg ttt ggg gca       960
Pro Val Phe Glu Gly Ile Lys Ser Arg Leu Glu Gln Trp Phe Gly Ala
305                    310                    315                    320

aat tac gtg gat cat gta aaa ggc gaa tct att acg ttt tca ttt acc      1008
Asn Tyr Val Asp His Val Lys Gly Glu Ser Ile Thr Phe Ser Phe Thr
                325                    330                    335

gac ggg tct tac agc aca gcg gtg ttc gcg tca agt cac aac aca aac      1056
Asp Gly Ser Tyr Ser Thr Ala Val Phe Ala Ser Ser His Asn Thr Asn
            340                    345                    350

gtgagtgttt tataaattta acctttaata tattactgta aatgttgaca tatacctttc    1116

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gggggtggaa acgggagaaa tgacgtaaaa ttacatatga agagattctg gtgttatgtt      2376

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gcgctgcgta taaatttacc cctcagttgt gtggaattac caataccaac cttttctaag      2676

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cacgcagcat caataatagc ctgtgcagag tgatataaaa ttggacttcc ggtaatacgt      3276

cctccccagg cagaggatcc gttgtaagat actacaatca acggactggg ggattctgcg      3336

taatgtcgcg gtacaattga taggggacgc cgtttccaga aatctgctgg agtgtccccg      3396

ctaactaatt gggcataaca gatgtcgaac cattccataa gactttgggg ttctgtcgaa      3456

gctggggtaa acaatagaac gtcttgtaaa ggtgggatgc tggcggacga attgtttttc      3516

tttcccgtaa atcgcccttg tccaggcggc tcaaggacgc catcaaagga accgttattg      3576

atcggatctg tgttggaagt ttgcgctccg tggcccttg cactttgaag caacccagat      3636

gcaacgcggg aactagaagg tcggacgggg tgcctggagt taacaatgtt tacggcccgt      3696

tttattagct caaggacgtc ccgattattt tcctgtatgc gtgtttcagc aggggagtca      3756

tcaatacctc cagaagttaa ctgtcgatca agatcgatta tggatgaaac gggtccaata      3816

ttgtccccat ttgacgtgtg tgattcaccc atggctgcca ccatatgctc tgcgtatatt      3876

tttatagacg atgcaagacg aggggtgcat cggatatacg caatcagctg tttgcataat      3936

aaaagtaccc gttgtccatc agcaaaataa cgcgttccgt ttgggattag ttctgcatac      3996

ataatacaaa tatcacggtg cttgcggttt ccagtatta ttcgtatcgc tacaacgtta      4056
```

```
aatgcatcaa agaataaacc ggggctaaga taaacaggca atgataaaat caatccccct    4116

gaattatgcg tggccgaaaa aacgtgtgaa acaaatggtt ccgttttgg tattaagaga    4176

tttgttaagg cgttatcggg aatgtacgcg gcgaaaactt gacaccacgg ttcgcattga    4236

cctgtagcat gatatcttgt ttgtacttca accttgaagc gttgtccggg tttctttaaa    4296

atcagtaatg cgggatctat tccggccgca ataagccccg cgttaggtat cacaacgtgt    4356

agtaatcctt ttgtgtgatc attatgccaa agtgcatgtt tggtttcatt tgccaaatgg    4416

gcttccatta tacaccggat atggttgtac tggaaaaaaa aaagaaatat gtacgtattc    4476

aaacattttt tacgtacgtg gtatttaagg atacatttaa actttggtgg ggtaactata    4536
```

```
tatctttcta tcgttccag ggt atc cga ggt caa gat ttt aat ctt ctg ttt    4588
                       Gly Ile Arg Gly Gln Asp Phe Asn Leu Leu Phe
                               355                  360
```

```
gtg gat gaa gct aat ttt att cga cct gat gct gta caa act ata gtc    4636
Val Asp Glu Ala Asn Phe Ile Arg Pro Asp Ala Val Gln Thr Ile Val
    365                 370                 375
```

```
gga ttt tta aat caa acc aat tgt aaa att att ttt gtt tca tca aca    4684
Gly Phe Leu Asn Gln Thr Asn Cys Lys Ile Ile Phe Val Ser Ser Thr
380                 385                 390                 395
```

```
aat acc gga aaa gca agt aca agt ttt ttg tat aac tta cgt gga tcg    4732
Asn Thr Gly Lys Ala Ser Thr Ser Phe Leu Tyr Asn Leu Arg Gly Ser
                400                 405                 410
```

```
tcg gat cag ttg tta aac gtt gtt aca tat gta tgc gac gat cac atg    4780
Ser Asp Gln Leu Leu Asn Val Val Thr Tyr Val Cys Asp Asp His Met
            415                 420                 425
```

```
ccg cgt gtt tta gca cat agc gat gtc aca gct tgt tcg tgt tat gta    4828
Pro Arg Val Leu Ala His Ser Asp Val Thr Ala Cys Ser Cys Tyr Val
        430                 435                 440
```

```
tta aat aag ccg gtt ttc atc aca atg gat gga gcc atg cgg cgc act    4876
Leu Asn Lys Pro Val Phe Ile Thr Met Asp Gly Ala Met Arg Arg Thr
    445                 450                 455
```

```
gca gat tta ttt atg gcc gac tcc ttc gtg cag gaa att gta ggt ggg    4924
Ala Asp Leu Phe Met Ala Asp Ser Phe Val Gln Glu Ile Val Gly Gly
460                 465                 470                 475
```

```
cgt aaa cag aat tct ggg ggt gtg ggg ttt gac cgg cca tta ttt aca    4972
Arg Lys Gln Asn Ser Gly Gly Val Gly Phe Asp Arg Pro Leu Phe Thr
                480                 485                 490
```

```
aaa act gcc cgt gag agg ttt att tta tat cgg ccg tca acc gtt gcg    5020
Lys Thr Ala Arg Glu Arg Phe Ile Leu Tyr Arg Pro Ser Thr Val Ala
            495                 500                 505
```

```
aat tgt gct ata tta tcg tca gtg ttg tac gtt tac gta gac cct gca    5068
Asn Cys Ala Ile Leu Ser Ser Val Leu Tyr Val Tyr Val Asp Pro Ala
        510                 515                 520
```

```
ttt acc tca aat aca cga gcg tct ggt act ggt gta gcg att gtt ggt    5116
Phe Thr Ser Asn Thr Arg Ala Ser Gly Thr Gly Val Ala Ile Val Gly
    525                 530                 535
```

```
cgt tat aag tcg gat tgg att ata ttt gga ttg gag cac ttt ttt ctt      5164
Arg Tyr Lys Ser Asp Trp Ile Ile Phe Gly Leu Glu His Phe Phe Leu
540             545             550             555

aga gct tta act ggc acg tct tcc agt gag ata ggg cgt tgc gtt act      5212
Arg Ala Leu Thr Gly Thr Ser Ser Ser Glu Ile Gly Arg Cys Val Thr
                560             565             570

caa tgc tta ggc cac ata ctc gct tta cac ccc aat aca ttt aca aac      5260
Gln Cys Leu Gly His Ile Leu Ala Leu His Pro Asn Thr Phe Thr Asn
            575             580             585

gta cac gtt tct ata gag gga aac agc agc cag gat tct gca gtt gcc      5308
Val His Val Ser Ile Glu Gly Asn Ser Ser Gln Asp Ser Ala Val Ala
        590             595             600

ata tcg ttg gct ata gca caa cag ttt gct gtc ctc gaa aag gga aac      5356
Ile Ser Leu Ala Ile Ala Gln Gln Phe Ala Val Leu Glu Lys Gly Asn
        605             610             615

gtg cta tct tcc gct cca gtg tta ctg ttt tat cat tcc ata cct ccc      5404
Val Leu Ser Ser Ala Pro Val Leu Leu Phe Tyr His Ser Ile Pro Pro
620             625             630             635

gga tgt agc gtg gcg tac cct ttt ttt tta tta caa aaa caa aaa acg      5452
Gly Cys Ser Val Ala Tyr Pro Phe Phe Leu Leu Gln Lys Gln Lys Thr
                640             645             650

ccg gcc gta gac tat ttt gtt aaa cga ttt aac tcc gga aat ata ata      5500
Pro Ala Val Asp Tyr Phe Val Lys Arg Phe Asn Ser Gly Asn Ile Ile
                655             660             665

gcc tca cag gag ctt gta tcc cta aca gta aag tta ggt gta gac ccc      5548
Ala Ser Gln Glu Leu Val Ser Leu Thr Val Lys Leu Gly Val Asp Pro
            670             675             680

gtg gag tat cta tgt aaa cag ttg gat aac ctg aca gag gta att aaa      5596
Val Glu Tyr Leu Cys Lys Gln Leu Asp Asn Leu Thr Glu Val Ile Lys
        685             690             695

ggc ggt atg ggt aat cta gac aca aaa act tac acg ggt aaa ggt acc      5644
Gly Gly Met Gly Asn Leu Asp Thr Lys Thr Tyr Thr Gly Lys Gly Thr
700             705             710             715

acg gga aca atg tca gat gat ctg atg gtt gca tta att atg tcc gtg      5692
Thr Gly Thr Met Ser Asp Asp Leu Met Val Ala Leu Ile Met Ser Val
                720             725             730

tat att ggc agt tca tgt ata ccg gat tcc gtg ttt atg cct att aaa      5740
Tyr Ile Gly Ser Ser Cys Ile Pro Asp Ser Val Phe Met Pro Ile Lys
                735             740             745

taa                                                                   5743


<210>   81
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<212>   PRT
<213>   Varicella zoster

<400>   81
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Met Ser Leu Ile Met Phe Gly Arg Thr Leu Gly Glu Glu Ser Val Arg
1               5               10                  15

Tyr Phe Glu Arg Leu Lys Arg Arg Asp Glu Arg Phe Gly Thr Leu
            20              25              30

Glu Ser Pro Thr Pro Cys Ser Thr Arg Gln Gly Ser Leu Gly Asn Ala
        35              40              45

Thr Gln Ile Pro Phe Leu Asn Phe Ala Ile Asp Val Thr Arg Arg His
    50              55              60

Gln Ala Val Ile Pro Gly Ile Gly Thr Leu His Asn Cys Cys Glu Tyr
65              70              75                  80

Ile Pro Leu Phe Ser Ala Thr Ala Arg Arg Ala Met Phe Gly Ala Phe
            85              90              95

Leu Ser Ser Thr Gly Tyr Asn Cys Thr Pro Asn Val Val Leu Lys Pro
            100             105             110

Trp Arg Tyr Ser Val Asn Ala Asn Val Ser Pro Glu Leu Lys Lys Ala
        115             120             125

Val Ser Ser Val Gln Phe Tyr Glu Tyr Ser Pro Glu Glu Ala Ala Pro
    130             135             140

His Arg Asn Ala Tyr Ser Gly Val Met Asn Thr Phe Arg Ala Phe Ser
145             150             155             160

Leu Ser Asp Ser Phe Cys Gln Leu Ser Thr Phe Thr Gln Arg Phe Ser
            165             170             175

Tyr Leu Val Glu Thr Ser Phe Glu Ser Ile Glu Glu Cys Gly Ser His
            180             185             190

Gly Lys Arg Ala Lys Val Asp Val Pro Ile Tyr Gly Arg Tyr Lys Gly
        195             200             205

Thr Leu Glu Leu Phe Gln Lys Met Ile Leu Met His Thr Thr His Phe
    210             215             220

Ile Ser Ser Val Leu Leu Gly Asp His Ala Asp Arg Val Asp Cys Phe
225             230             235             240

Leu Arg Thr Val Phe Asn Thr Pro Ser Val Ser Asp Ser Val Leu Glu
            245             250             255
```

His Phe Lys Gln Lys Ser Thr Val Phe Leu Val Pro Arg Arg His Gly
              260   265   270

Lys Thr Trp Phe Leu Val Pro Leu Ile Ala Leu Val Met Ala Thr Phe
          275   280   285

Arg Gly Ile Lys Val Gly Tyr Thr Ala His Ile Arg Lys Ala Thr Glu
      290   295   300

Pro Val Phe Glu Gly Ile Lys Ser Arg Leu Glu Gln Trp Phe Gly Ala
305   310   315   320

Asn Tyr Val Asp His Val Lys Gly Glu Ser Ile Thr Phe Ser Phe Thr
              325   330   335

Asp Gly Ser Tyr Ser Thr Ala Val Phe Ala Ser Ser His Asn Thr Asn
              340   345   350

Gly Ile Arg Gly Gln Asp Phe Asn Leu Leu Phe Val Asp Glu Ala Asn
          355   360   365

Phe Ile Arg Pro Asp Ala Val Gln Thr Ile Val Gly Phe Leu Asn Gln
      370   375   380

Thr Asn Cys Lys Ile Ile Phe Val Ser Ser Thr Asn Thr Gly Lys Ala
385   390   395   400

Ser Thr Ser Phe Leu Tyr Asn Leu Arg Gly Ser Ser Asp Gln Leu Leu
              405   410   415

Asn Val Val Thr Tyr Val Cys Asp Asp His Met Pro Arg Val Leu Ala
              420   425   430

His Ser Asp Val Thr Ala Cys Ser Cys Tyr Val Leu Asn Lys Pro Val
          435   440   445

Phe Ile Thr Met Asp Gly Ala Met Arg Arg Thr Ala Asp Leu Phe Met
      450   455   460

Ala Asp Ser Phe Val Gln Glu Ile Val Gly Gly Arg Lys Gln Asn Ser
465   470   475   480

Gly Gly Val Gly Phe Asp Arg Pro Leu Phe Thr Lys Thr Ala Arg Glu
              485   490   495

Arg Phe Ile Leu Tyr Arg Pro Ser Thr Val Ala Asn Cys Ala Ile Leu
          500   505   510

```
Ser Ser Val Leu Tyr Val Tyr Val Asp Pro Ala Phe Thr Ser Asn Thr
        515             520             525

Arg Ala Ser Gly Thr Gly Val Ala Ile Val Gly Arg Tyr Lys Ser Asp
        530             535             540

Trp Ile Ile Phe Gly Leu Glu His Phe Phe Leu Arg Ala Leu Thr Gly
545             550             555             560

Thr Ser Ser Ser Glu Ile Gly Arg Cys Val Thr Gln Cys Leu Gly His
            565             570             575

Ile Leu Ala Leu His Pro Asn Thr Phe Thr Asn Val His Val Ser Ile
            580             585             590

Glu Gly Asn Ser Ser Gln Asp Ser Ala Val Ala Ile Ser Leu Ala Ile
        595             600             605

Ala Gln Gln Phe Ala Val Leu Glu Lys Gly Asn Val Leu Ser Ser Ala
        610             615             620

Pro Val Leu Leu Phe Tyr His Ser Ile Pro Pro Gly Cys Ser Val Ala
625             630             635             640

Tyr Pro Phe Phe Leu Leu Gln Lys Gln Lys Thr Pro Ala Val Asp Tyr
            645             650             655

Phe Val Lys Arg Phe Asn Ser Gly Asn Ile Ile Ala Ser Gln Glu Leu
            660             665             670

Val Ser Leu Thr Val Lys Leu Gly Val Asp Pro Val Glu Tyr Leu Cys
        675             680             685

Lys Gln Leu Asp Asn Leu Thr Glu Val Ile Lys Gly Gly Met Gly Asn
        690             695             700

Leu Asp Thr Lys Thr Tyr Thr Gly Lys Gly Thr Thr Gly Thr Met Ser
705             710             715             720

Asp Asp Leu Met Val Ala Leu Ile Met Ser Val Tyr Ile Gly Ser Ser
            725             730             735

Cys Ile Pro Asp Ser Val Phe Met Pro Ile Lys
            740             745
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<210>   82

<211> 1308
<212> DNA
<213> Varicella zoster

<220>
<221> CDS
<222> (1)..(1308)

<400> 82

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atg gga act caa aag aag ggg ccg cgt tct gaa aaa gtc tcg ccg tac     48
Met Gly Thr Gln Lys Lys Gly Pro Arg Ser Glu Lys Val Ser Pro Tyr
1               5                   10                  15

gac acc acg aca ccc gag gtg gaa gcg tta gat cat caa atg gat acg     96
Asp Thr Thr Thr Pro Glu Val Glu Ala Leu Asp His Gln Met Asp Thr
                20                  25                  30

ctt aat tgg cga att tgg ata att cag gtg atg atg ttc act ttg ggt    144
Leu Asn Trp Arg Ile Trp Ile Ile Gln Val Met Met Phe Thr Leu Gly
            35                  40                  45

gcg gta atg ctc ctg gct acg tta att gcc gcc tct tct gaa tat acc    192
Ala Val Met Leu Leu Ala Thr Leu Ile Ala Ala Ser Ser Glu Tyr Thr
        50                  55                  60

ggg atc cct tgt ttt tat gct gcc gta gtt gat tat gag tta ttt aac    240
Gly Ile Pro Cys Phe Tyr Ala Ala Val Val Asp Tyr Glu Leu Phe Asn
65                  70                  75                  80

gcc acc cta gat ggg ggg gta tgg tcc gga aat aga ggt gga tac agc    288
Ala Thr Leu Asp Gly Gly Val Trp Ser Gly Asn Arg Gly Gly Tyr Ser
                85                  90                  95

gcc ccg gtt ttg ttt ttg gaa cca cat agc gtt gtg gca ttt act tac    336
Ala Pro Val Leu Phe Leu Glu Pro His Ser Val Val Ala Phe Thr Tyr
                100                 105                 110

tac acg gct tta acg gca atg gcc atg gcg gta tat aca ctg atc acg    384
Tyr Thr Ala Leu Thr Ala Met Ala Met Ala Val Tyr Thr Leu Ile Thr
            115                 120                 125

gcc gcg att ata cac cga gaa acg aaa aat caa cgt gtc cgg caa agc    432
Ala Ala Ile Ile His Arg Glu Thr Lys Asn Gln Arg Val Arg Gln Ser
        130                 135                 140

tcc ggt gtt gca tgg tta gtt gta gat ccc aca aca ctt ttt tgg ggt    480
Ser Gly Val Ala Trp Leu Val Val Asp Pro Thr Thr Leu Phe Trp Gly
145                 150                 155                 160

ctt ttg tca ttg tgg tta tta aac gcc gtt gtg tta tta tta gct tac    528
Leu Leu Ser Leu Trp Leu Leu Asn Ala Val Val Leu Leu Leu Ala Tyr
                165                 170                 175

aag caa atc ggc gtg gct gct aca tta tat ctt gga cat ttt gcg aca    576
Lys Gln Ile Gly Val Ala Ala Thr Leu Tyr Leu Gly His Phe Ala Thr
                180                 185                 190

agt gta ata ttt aca acg tat ttt tgt gga cgc gga aaa ttg gac gaa    624
Ser Val Ile Phe Thr Thr Tyr Phe Cys Gly Arg Gly Lys Leu Asp Glu
            195                 200                 205

acg aac ata aaa gcg gtc gca aat tta cga cag cag agc gtc ttt tta    672
Thr Asn Ile Lys Ala Val Ala Asn Leu Arg Gln Gln Ser Val Phe Leu
```

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```
Thr Asn Ile Lys Ala Val Ala Asn Leu Arg Gln Gln Ser Val Phe Leu
210             215                 220

tat cgc ctt gcg ggg cct acg cgc gca gtg ttc gtg aat ttg atg gct        720
Tyr Arg Leu Ala Gly Pro Thr Arg Ala Val Phe Val Asn Leu Met Ala
225             230                 235                 240

gcg ttg atg gcg ata tgt atc cta ttt gta tca tta atg ctg gaa ctt        768
Ala Leu Met Ala Ile Cys Ile Leu Phe Val Ser Leu Met Leu Glu Leu
                245                 250                 255

gtg gtg gcg aat cat cta cat acg gga ctg tgg tca tcg gtg tcc gtg        816
Val Val Ala Asn His Leu His Thr Gly Leu Trp Ser Ser Val Ser Val
                260                 265                 270

gcc atg tct aca ttt agt aca ttg tca gtt gta tat ctt ata gta tca        864
Ala Met Ser Thr Phe Ser Thr Leu Ser Val Val Tyr Leu Ile Val Ser
            275                 280                 285

gaa tta att ttg gcg cat tat ata cac gtg tta ata gga ccg tcc ctg        912
Glu Leu Ile Leu Ala His Tyr Ile His Val Leu Ile Gly Pro Ser Leu
        290                 295                 300

gga acg ctc gtg gcc tgt gct acg ttg gga acc gcc gcg cac tcg tat        960
Gly Thr Leu Val Ala Cys Ala Thr Leu Gly Thr Ala Ala His Ser Tyr
305             310                 315                 320

atg gac cga tta tat gac cct ata tcg gtt caa tct cca cgg tta att       1008
Met Asp Arg Leu Tyr Asp Pro Ile Ser Val Gln Ser Pro Arg Leu Ile
                325                 330                 335

ccc aca act cgg gga acc ttg gct tgc ctg gcc gtg ttt tcc gtt gtc       1056
Pro Thr Thr Arg Gly Thr Leu Ala Cys Leu Ala Val Phe Ser Val Val
            340                 345                 350

atg ttg ctt ctc aga ttg atg cgt gca tat gtg tat cat cga cag aaa       1104
Met Leu Leu Leu Arg Leu Met Arg Ala Tyr Val Tyr His Arg Gln Lys
            355                 360                 365

cgc agt cgg ttc tac ggt gcc gta aga aga gta ccc gag cgg gta cgg       1152
Arg Ser Arg Phe Tyr Gly Ala Val Arg Arg Val Pro Glu Arg Val Arg
        370                 375                 380

gga tac ata cga aaa gta aaa cct gca cat aga aat tct cgc cgc aca       1200
Gly Tyr Ile Arg Lys Val Lys Pro Ala His Arg Asn Ser Arg Arg Thr
385             390                 395                 400

aat tac cca tca caa ggc tac ggc tac gtc tat gaa aat gac tca aca       1248
Asn Tyr Pro Ser Gln Gly Tyr Gly Tyr Val Tyr Glu Asn Asp Ser Thr
                405                 410                 415

tat gaa acg gac cgc gag gat gag ctg tta tac gag cga tca aac agt       1296
Tyr Glu Thr Asp Arg Glu Asp Glu Leu Leu Tyr Glu Arg Ser Asn Ser
                420                 425                 430

ggg tgg gag tag                                                        1308
Gly Trp Glu
            435
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<210> 83
<211> 435
<212> PRT

<213> Varicella zoster

<400> 83

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Met Gly Thr Gln Lys Lys Gly Pro Arg Ser Glu Lys Val Ser Pro Tyr
1               5                   10                  15

Asp Thr Thr Thr Pro Glu Val Glu Ala Leu Asp His Gln Met Asp Thr
                20                  25                  30

Leu Asn Trp Arg Ile Trp Ile Ile Gln Val Met Met Phe Thr Leu Gly
            35                  40                  45

Ala Val Met Leu Leu Ala Thr Leu Ile Ala Ala Ser Ser Glu Tyr Thr
        50                  55                  60

Gly Ile Pro Cys Phe Tyr Ala Ala Val Val Asp Tyr Glu Leu Phe Asn
65                  70                  75                  80

Ala Thr Leu Asp Gly Gly Val Trp Ser Gly Asn Arg Gly Gly Tyr Ser
                85                  90                  95

Ala Pro Val Leu Phe Leu Glu Pro His Ser Val Val Ala Phe Thr Tyr
                100                 105                 110

Tyr Thr Ala Leu Thr Ala Met Ala Met Ala Val Tyr Thr Leu Ile Thr
        115                 120                 125

Ala Ala Ile Ile His Arg Glu Thr Lys Asn Gln Arg Val Arg Gln Ser
    130                 135                 140

Ser Gly Val Ala Trp Leu Val Val Asp Pro Thr Thr Leu Phe Trp Gly
145                 150                 155                 160

Leu Leu Ser Leu Trp Leu Leu Asn Ala Val Val Leu Leu Leu Ala Tyr
                165                 170                 175

Lys Gln Ile Gly Val Ala Ala Thr Leu Tyr Leu Gly His Phe Ala Thr
                180                 185                 190

Ser Val Ile Phe Thr Thr Tyr Phe Cys Gly Arg Gly Lys Leu Asp Glu
        195                 200                 205

Thr Asn Ile Lys Ala Val Ala Asn Leu Arg Gln Gln Ser Val Phe Leu
    210                 215                 220

Tyr Arg Leu Ala Gly Pro Thr Arg Ala Val Phe Val Asn Leu Met Ala
225                 230                 235                 240
```

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```
Ala Leu Met Ala Ile Cys Ile Leu Phe Val Ser Leu Met Leu Glu Leu
                245             250             255

Val Val Ala Asn His Leu His Thr Gly Leu Trp Ser Ser Val Ser Val
                260             265             270

Ala Met Ser Thr Phe Ser Thr Leu Ser Val Val Tyr Leu Ile Val Ser
                275             280             285

Glu Leu Ile Leu Ala His Tyr Ile His Val Leu Ile Gly Pro Ser Leu
        290             295             300

Gly Thr Leu Val Ala Cys Ala Thr Leu Gly Thr Ala Ala His Ser Tyr
305             310             315             320

Met Asp Arg Leu Tyr Asp Pro Ile Ser Val Gln Ser Pro Arg Leu Ile
                325             330             335

Pro Thr Thr Arg Gly Thr Leu Ala Cys Leu Ala Val Phe Ser Val Val
                340             345             350

Met Leu Leu Leu Arg Leu Met Arg Ala Tyr Val Tyr His Arg Gln Lys
        355             360             365

Arg Ser Arg Phe Tyr Gly Ala Val Arg Arg Val Pro Glu Arg Val Arg
        370             375             380

Gly Tyr Ile Arg Lys Val Lys Pro Ala His Arg Asn Ser Arg Arg Thr
385             390             395             400

Asn Tyr Pro Ser Gln Gly Tyr Gly Tyr Val Tyr Glu Asn Asp Ser Thr
                405             410             415

Tyr Glu Thr Asp Arg Glu Asp Glu Leu Leu Tyr Glu Arg Ser Asn Ser
                420             425             430

Gly Trp Glu
        435


<210>    84
<211>    2310
<212>    DNA
<213>    Varicella zoster


<220>
<221>    CDS
<222>    (1)..(2310)
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<400> 84

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atg gcc gaa ata acg tct ctt ttt aat aac agt tcc ggt agt gaa gaa          48
Met Ala Glu Ile Thr Ser Leu Phe Asn Asn Ser Ser Gly Ser Glu Glu
1               5                   10                  15

aaa agg ata gca agt tct gtt tct att gac cag ggc ttg aat gga agt          96
Lys Arg Ile Ala Ser Ser Val Ser Ile Asp Gln Gly Leu Asn Gly Ser
                20                  25                  30

aac cca aat gac caa tac aag aac atg ttc gat ata tac tgg aat gag         144
Asn Pro Asn Asp Gln Tyr Lys Asn Met Phe Asp Ile Tyr Trp Asn Glu
            35                  40                  45

tac gcc ccg gat ata ggg ttt tgt aca ttt ccg gag gaa gat ggc tgg         192
Tyr Ala Pro Asp Ile Gly Phe Cys Thr Phe Pro Glu Glu Asp Gly Trp
        50                  55                  60

atg tta ata cac cca acc acg caa agt atg ttg ttt cga aaa atc cta         240
Met Leu Ile His Pro Thr Thr Gln Ser Met Leu Phe Arg Lys Ile Leu
65                  70                  75                  80

gcc ggt gac ttt gga tat acc gat gga caa ggc ata tat agc gct gta         288
Ala Gly Asp Phe Gly Tyr Thr Asp Gly Gln Gly Ile Tyr Ser Ala Val
                85                  90                  95

cgg tct acg gaa act gta att cgc caa gtt cag gca acc gtt ttg atg         336
Arg Ser Thr Glu Thr Val Ile Arg Gln Val Gln Ala Thr Val Leu Met
                100                 105                 110

aac gcg ttg gat gca act cgg tat gag gac cta gca gca gat tgg gaa         384
Asn Ala Leu Asp Ala Thr Arg Tyr Glu Asp Leu Ala Ala Asp Trp Glu
            115                 120                 125

cac cac atc caa caa tgt aac ctg cat gcc ggg gct cta gcg gaa cgt         432
His His Ile Gln Gln Cys Asn Leu His Ala Gly Ala Leu Ala Glu Arg
            130                 135                 140

tat ggg cta tgt gga gaa tca gaa gcc gta cgg ctt gca cat cag gtt         480
Tyr Gly Leu Cys Gly Glu Ser Glu Ala Val Arg Leu Ala His Gln Val
145                 150                 155                 160

ttt gaa acc tgg cgt caa aca tta cag tca tcg tta ctt gag ttt ctg         528
Phe Glu Thr Trp Arg Gln Thr Leu Gln Ser Ser Leu Leu Glu Phe Leu
                165                 170                 175

cgt gga ata acc ggt tgt ctc tat acc agt ggt tta aat gga agg gtc         576
Arg Gly Ile Thr Gly Cys Leu Tyr Thr Ser Gly Leu Asn Gly Arg Val
                180                 185                 190

ggt ttt gcc aaa tac gtg gac tgg ata gcc tgt gta ggt att gtg ccc         624
Gly Phe Ala Lys Tyr Val Asp Trp Ile Ala Cys Val Gly Ile Val Pro
                195                 200                 205

gtt gta aga aag gta cga tca gaa cag aat gga acc cct gca cca tta         672
Val Val Arg Lys Val Arg Ser Glu Gln Asn Gly Thr Pro Ala Pro Leu
            210                 215                 220

aat acg tat atg ggt caa gcg gca gaa ctg tcc cag atg tta aaa gtt         720
Asn Thr Tyr Met Gly Gln Ala Ala Glu Leu Ser Gln Met Leu Lys Val
225                 230                 235                 240

gcc gat gca acg ttg gcc aga gga gcg gcg gtt gtc aca agc cta gtt         768
Ala Asp Ala Thr Leu Ala Arg Gly Ala Ala Val Val Thr Ser Leu Val
```

                            245   250   255

```
gag tgt atg caa aat gtt gct att atg gat tat gat agg acg cgt ctt        816
Glu Cys Met Gln Asn Val Ala Ile Met Asp Tyr Asp Arg Thr Arg Leu
            260                    265                    270

tat tat aat tat aac cga aga tta att atg gca aag gat gat gta acg        864
Tyr Tyr Asn Tyr Asn Arg Arg Leu Ile Met Ala Lys Asp Asp Val Thr
            275                    280                    285

ggc atg aag gga gag tgt ttg gtc gtg tgg ccg ccc gtt gta tgt ggg        912
Gly Met Lys Gly Glu Cys Leu Val Val Trp Pro Pro Val Val Cys Gly
            290                    295                    300

gag ggt gta gta ttt gac tca ccc tta cag cgg ctt tct ggg gag gtg        960
Glu Gly Val Val Phe Asp Ser Pro Leu Gln Arg Leu Ser Gly Glu Val
305                    310                    315                    320

ttg gcc tgt tat gca tta cgt gaa cat gct cgc gtc tgc caa gtt tta       1008
Leu Ala Cys Tyr Ala Leu Arg Glu His Ala Arg Val Cys Gln Val Leu
                325                    330                    335

aat aca gcc cct ttg cgc gtg tta ata ggt cgc cgg aat gaa gat gat       1056
Asn Thr Ala Pro Leu Arg Val Leu Ile Gly Arg Arg Asn Glu Asp Asp
            340                    345                    350

aga tct cac agc aca cgt gcg gtt gat cgt ata atg ggc gag aac gat       1104
Arg Ser His Ser Thr Arg Ala Val Asp Arg Ile Met Gly Glu Asn Asp
            355                    360                    365

aca aca cgg gct gga tcg gcc gcg tct aga ctt gta aag cta ata gtt       1152
Thr Thr Arg Ala Gly Ser Ala Ala Ser Arg Leu Val Lys Leu Ile Val
            370                    375                    380

aac tta aaa aac atg aga cat gtt gga gat att acc gaa acc gta cgt       1200
Asn Leu Lys Asn Met Arg His Val Gly Asp Ile Thr Glu Thr Val Arg
385                    390                    395                    400

tcc tat cta gaa gaa acg ggc aat cac att ctg gaa gga agt gga tcg       1248
Ser Tyr Leu Glu Glu Thr Gly Asn His Ile Leu Glu Gly Ser Gly Ser
                405                    410                    415

gtg gac aca tca caa ccg ggg ttt ggc aag gcc aac caa tcc ttt aac       1296
Val Asp Thr Ser Gln Pro Gly Phe Gly Lys Ala Asn Gln Ser Phe Asn
            420                    425                    430

ggg ggg gca atg tcc gga aca aca aac gtt caa agt gcg ttt aaa act       1344
Gly Gly Ala Met Ser Gly Thr Thr Asn Val Gln Ser Ala Phe Lys Thr
            435                    440                    445

tcg gtg gtt aac agt atc aac ggc atg ctc gag ggt tat gtg aat aat       1392
Ser Val Val Asn Ser Ile Asn Gly Met Leu Glu Gly Tyr Val Asn Asn
            450                    455                    460

tta ttc aaa acc att gag ggt ctc aag gat gtg aac agc gat ctg acc       1440
Leu Phe Lys Thr Ile Glu Gly Leu Lys Asp Val Asn Ser Asp Leu Thr
465                    470                    475                    480

gaa agg ctc cag ttc aaa gaa gga gag ctg aaa cgg tta cgg gaa gag       1488
Glu Arg Leu Gln Phe Lys Glu Gly Glu Leu Lys Arg Leu Arg Glu Glu
                485                    490                    495

agg gta aaa ata aag cca tct aaa ggg tca cat att aca atg gca gaa       1536
```

```
Arg Val Lys Ile Lys Pro Ser Lys Gly Ser His Ile Thr Met Ala Glu
        500             505                 510

gaa aca cgt att gcc gat tta aat cac gag gtt ata gat ctt acc ggc       1584
Glu Thr Arg Ile Ala Asp Leu Asn His Glu Val Ile Asp Leu Thr Gly
        515             520                 525

ata ata ggg gat gat gca tat att gcc aat agt ttt caa tct cgt tat       1632
Ile Ile Gly Asp Asp Ala Tyr Ile Ala Asn Ser Phe Gln Ser Arg Tyr
        530             535                 540

atc ccc cct tat gga gat gat ata aaa cgt ttg tct gag cta tgg aaa       1680
Ile Pro Pro Tyr Gly Asp Asp Ile Lys Arg Leu Ser Glu Leu Trp Lys
545             550             555                 560

cag gaa ctt gtt cgc tgt ttt aag ctt cac cgg gta aac aat aat caa       1728
Gln Glu Leu Val Arg Cys Phe Lys Leu His Arg Val Asn Asn Asn Gln
                565             570                 575

ggc cag gaa att tct gta tca tat tca aat gcg tca atc tca tta cta       1776
Gly Gln Glu Ile Ser Val Ser Tyr Ser Asn Ala Ser Ile Ser Leu Leu
                580             585                 590

gtt gcg ccg tat ttt tca ttc ata tta cgg gcc acc cga tta gga ttc       1824
Val Ala Pro Tyr Phe Ser Phe Ile Leu Arg Ala Thr Arg Leu Gly Phe
        595             600                 605

ttg gta act caa agc gag gta cat agg tca gag gaa gag tta tgc cag       1872
Leu Val Thr Gln Ser Glu Val His Arg Ser Glu Glu Glu Leu Cys Gln
        610             615                 620

gct att ttt aaa aag gcg aga aca gag tcc tat tta tcc caa atc cga       1920
Ala Ile Phe Lys Lys Ala Arg Thr Glu Ser Tyr Leu Ser Gln Ile Arg
625             630             635                 640

ata tta tat gaa atg cag gtt cgc gca gag gta ata aaa cgg ggc cca       1968
Ile Leu Tyr Glu Met Gln Val Arg Ala Glu Val Ile Lys Arg Gly Pro
                645             650                 655

cgg aga aca cca agt cct tcc tgg ggt ttg cct gac cct aca gaa gat       2016
Arg Arg Thr Pro Ser Pro Ser Trp Gly Leu Pro Asp Pro Thr Glu Asp
                660             665                 670

gac gaa aga atc ccg gaa ccc aat aaa ata aat aac caa tac atg cat       2064
Asp Glu Arg Ile Pro Glu Pro Asn Lys Ile Asn Asn Gln Tyr Met His
        675             680                 685

gtt gga tat aaa aac cta tcc cat ttt atg aaa gga cac ccc cct gag       2112
Val Gly Tyr Lys Asn Leu Ser His Phe Met Lys Gly His Pro Pro Glu
        690             695                 700

agg tta cgg gta cac aag gta aat gca gcg gat tcg acc tta ctg gat       2160
Arg Leu Arg Val His Lys Val Asn Ala Ala Asp Ser Thr Leu Leu Asp
705             710             715                 720

aaa att cga gca aac cgg agg cgc ggg gat ggc cga tgg gat gtc cgg       2208
Lys Ile Arg Ala Asn Arg Arg Arg Gly Asp Gly Arg Trp Asp Val Arg
                725             730                 735

aat aaa tat acc cag cat ttt agg ttg cag cgt aac gat cga caa ctt       2256
Asn Lys Tyr Thr Gln His Phe Arg Leu Gln Arg Asn Asp Arg Gln Leu
                740             745                 750
```

```
act aac acg agc cga aga ggg gtt gga tgt gag cga cgt gat cga aga    2304
Thr Asn Thr Ser Arg Arg Gly Val Gly Cys Glu Arg Arg Asp Arg Arg
        755                 760                 765

tct tag                                                            2310
Ser
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<210> 85
<211> 769
<212> PRT
<213> Varicella zoster

<400> 85

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Met Ala Glu Ile Thr Ser Leu Phe Asn Asn Ser Ser Gly Ser Glu Glu
1               5                   10                  15


Lys Arg Ile Ala Ser Ser Val Ser Ile Asp Gln Gly Leu Asn Gly Ser
            20                  25                  30


Asn Pro Asn Asp Gln Tyr Lys Asn Met Phe Asp Ile Tyr Trp Asn Glu
        35                  40                  45


Tyr Ala Pro Asp Ile Gly Phe Cys Thr Phe Pro Glu Glu Asp Gly Trp
    50                  55                  60


Met Leu Ile His Pro Thr Thr Gln Ser Met Leu Phe Arg Lys Ile Leu
65                  70                  75                  80


Ala Gly Asp Phe Gly Tyr Thr Asp Gly Gln Gly Ile Tyr Ser Ala Val
                85                  90                  95


Arg Ser Thr Glu Thr Val Ile Arg Gln Val Gln Ala Thr Val Leu Met
            100                 105                 110


Asn Ala Leu Asp Ala Thr Arg Tyr Glu Asp Leu Ala Ala Asp Trp Glu
            115                 120                 125


His His Ile Gln Gln Cys Asn Leu His Ala Gly Ala Leu Ala Glu Arg
    130                 135                 140


Tyr Gly Leu Cys Gly Glu Ser Glu Ala Val Arg Leu Ala His Gln Val
145                 150                 155                 160


Phe Glu Thr Trp Arg Gln Thr Leu Gln Ser Ser Leu Leu Glu Phe Leu
                165                 170                 175


Arg Gly Ile Thr Gly Cys Leu Tyr Thr Ser Gly Leu Asn Gly Arg Val
            180                 185                 190
```

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```
Gly Phe Ala Lys Tyr Val Asp Trp Ile Ala Cys Val Gly Ile Val Pro
        195             200             205

Val Val Arg Lys Val Arg Ser Glu Gln Asn Gly Thr Pro Ala Pro Leu
    210             215             220

Asn Thr Tyr Met Gly Gln Ala Ala Glu Leu Ser Gln Met Leu Lys Val
225             230             235             240

Ala Asp Ala Thr Leu Ala Arg Gly Ala Ala Val Val Thr Ser Leu Val
            245             250             255

Glu Cys Met Gln Asn Val Ala Ile Met Asp Tyr Asp Arg Thr Arg Leu
            260             265             270

Tyr Tyr Asn Tyr Asn Arg Arg Leu Ile Met Ala Lys Asp Asp Val Thr
        275             280             285

Gly Met Lys Gly Glu Cys Leu Val Val Trp Pro Pro Val Val Cys Gly
    290             295             300

Glu Gly Val Val Phe Asp Ser Pro Leu Gln Arg Leu Ser Gly Glu Val
305             310             315             320

Leu Ala Cys Tyr Ala Leu Arg Glu His Ala Arg Val Cys Gln Val Leu
            325             330             335

Asn Thr Ala Pro Leu Arg Val Leu Ile Gly Arg Arg Asn Glu Asp Asp
            340             345             350

Arg Ser His Ser Thr Arg Ala Val Asp Arg Ile Met Gly Glu Asn Asp
        355             360             365

Thr Thr Arg Ala Gly Ser Ala Ala Ser Arg Leu Val Lys Leu Ile Val
    370             375             380

Asn Leu Lys Asn Met Arg His Val Gly Asp Ile Thr Glu Thr Val Arg
385             390             395             400

Ser Tyr Leu Glu Glu Thr Gly Asn His Ile Leu Glu Gly Ser Gly Ser
            405             410             415

Val Asp Thr Ser Gln Pro Gly Phe Gly Lys Ala Asn Gln Ser Phe Asn
            420             425             430

Gly Gly Ala Met Ser Gly Thr Thr Asn Val Gln Ser Ala Phe Lys Thr
        435             440             445
```

Ser Val Val Asn Ser Ile Asn Gly Met Leu Glu Gly Tyr Val Asn Asn
    450   455   460

Leu Phe Lys Thr Ile Glu Gly Leu Lys Asp Val Asn Ser Asp Leu Thr
465   470   475   480

Glu Arg Leu Gln Phe Lys Glu Gly Glu Leu Lys Arg Leu Arg Glu Glu
                485   490   495

Arg Val Lys Ile Lys Pro Ser Lys Gly Ser His Ile Thr Met Ala Glu
            500   505   510

Glu Thr Arg Ile Ala Asp Leu Asn His Glu Val Ile Asp Leu Thr Gly
        515   520   525

Ile Ile Gly Asp Asp Ala Tyr Ile Ala Asn Ser Phe Gln Ser Arg Tyr
    530   535   540

Ile Pro Pro Tyr Gly Asp Asp Ile Lys Arg Leu Ser Glu Leu Trp Lys
545   550   555   560

Gln Glu Leu Val Arg Cys Phe Lys Leu His Arg Val Asn Asn Asn Gln
                565   570   575

Gly Gln Glu Ile Ser Val Ser Tyr Ser Asn Ala Ser Ile Ser Leu Leu
            580   585   590

Val Ala Pro Tyr Phe Ser Phe Ile Leu Arg Ala Thr Arg Leu Gly Phe
        595   600   605

Leu Val Thr Gln Ser Glu Val His Arg Ser Glu Glu Glu Leu Cys Gln
    610   615   620

Ala Ile Phe Lys Lys Ala Arg Thr Glu Ser Tyr Leu Ser Gln Ile Arg
625   630   635   640

Ile Leu Tyr Glu Met Gln Val Arg Ala Glu Val Ile Lys Arg Gly Pro
                645   650   655

Arg Arg Thr Pro Ser Pro Ser Trp Gly Leu Pro Asp Pro Thr Glu Asp
            660   665   670

Asp Glu Arg Ile Pro Glu Pro Asn Lys Ile Asn Asn Gln Tyr Met His
        675   680   685

Val Gly Tyr Lys Asn Leu Ser His Phe Met Lys Gly His Pro Pro Glu
                    Page 418

```
Arg Leu Arg Val His Lys Val Asn Ala Ala Asp Ser Thr Leu Leu Asp
705                 710                 715                 720

Lys Ile Arg Ala Asn Arg Arg Arg Gly Asp Gly Arg Trp Asp Val Arg
                    725                 730                 735

Asn Lys Tyr Thr Gln His Phe Arg Leu Gln Arg Asn Asp Arg Gln Leu
                740                 745                 750

Thr Asn Thr Ser Arg Arg Gly Val Gly Cys Glu Arg Arg Asp Arg Arg
                755                 760                 765

Ser
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<210> 86
<211> 666
<212> DNA
<213> Varicella zoster

<220>
<221> CDS
<222> (1)..(666)

<400> 86
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atg ttt tcg gag ttg cct cct tcc gta ccg acg gca ttg ctt caa tgg        48
Met Phe Ser Glu Leu Pro Pro Ser Val Pro Thr Ala Leu Leu Gln Trp
1               5                   10                  15

ggt tgg gga ttg cat cgt gga ccg tgt tcg atc cca aat ttt aaa cag        96
Gly Trp Gly Leu His Arg Gly Pro Cys Ser Ile Pro Asn Phe Lys Gln
                20                  25                  30

gta gcc agc caa cac agt gtt cag aac gat ttt aca gaa aat agc gtt       144
Val Ala Ser Gln His Ser Val Gln Asn Asp Phe Thr Glu Asn Ser Val
            35                  40                  45

gat gca aat gaa aaa ttt ccg att ggg cac gcg ggc tgt att gag aaa       192
Asp Ala Asn Glu Lys Phe Pro Ile Gly His Ala Gly Cys Ile Glu Lys
    50                  55                  60

acc aaa gac gac tat gta cca ttt gat acg ttg ttc atg gta tca tct       240
Thr Lys Asp Asp Tyr Val Pro Phe Asp Thr Leu Phe Met Val Ser Ser
65                  70                  75                  80

att gac gaa ctt ggg cgg aga caa tta acc gac acc atc cgc cgc agc       288
Ile Asp Glu Leu Gly Arg Arg Gln Leu Thr Asp Thr Ile Arg Arg Ser
                85                  90                  95

ttg gtt atg aac gcc tgt gaa ata acg gtc gcg tgt acg aaa acc gca       336
Leu Val Met Asn Ala Cys Glu Ile Thr Val Ala Cys Thr Lys Thr Ala
                100                 105                 110

gcc ttt tct ggt cga ggc gtg tca cga caa aaa cac gtg acc cta tct       384
```

Ala Phe Ser Gly Arg Gly Val Ser Arg Gln Lys His Val Thr Leu Ser
       115   120   125

aaa aat aaa ttc aat cca tcc agt cat aag agc ctg caa atg ttt gtg   432
Lys Asn Lys Phe Asn Pro Ser Ser His Lys Ser Leu Gln Met Phe Val
       130   135   140

ttg tgt caa aaa acc cat gca ccc cgt gtc aga aac cta ctg tac gag   480
Leu Cys Gln Lys Thr His Ala Pro Arg Val Arg Asn Leu Leu Tyr Glu
145   150   155   160

agt att cgt gca aga aga cct cgc cga tat tac acc cgc tca acg gac   528
Ser Ile Arg Ala Arg Arg Pro Arg Arg Tyr Tyr Thr Arg Ser Thr Asp
             165   170   175

gga aaa tcg cgt ccg ttg gta cca gtg ttt gtg tat gag ttt acg gct   576
Gly Lys Ser Arg Pro Leu Val Pro Val Phe Val Tyr Glu Phe Thr Ala
             180   185   190

tta gat cgt gtc ctt tta cat aag gaa aat act ttg acc gac caa cca   624
Leu Asp Arg Val Leu Leu His Lys Glu Asn Thr Leu Thr Asp Gln Pro
             195   200   205

att aat act gaa aat agc ggt cat gga cgt acg aga acg taa   666
Ile Asn Thr Glu Asn Ser Gly His Gly Arg Thr Arg Thr
       210   215   220

<210> 87
<211> 221
<212> PRT
<213> Varicella zoster

<400> 87

Met Phe Ser Glu Leu Pro Pro Ser Val Pro Thr Ala Leu Leu Gln Trp
1   5   10   15

Gly Trp Gly Leu His Arg Gly Pro Cys Ser Ile Pro Asn Phe Lys Gln
       20   25   30

Val Ala Ser Gln His Ser Val Gln Asn Asp Phe Thr Glu Asn Ser Val
       35   40   45

Asp Ala Asn Glu Lys Phe Pro Ile Gly His Ala Gly Cys Ile Glu Lys
     50   55   60

Thr Lys Asp Asp Tyr Val Pro Phe Asp Thr Leu Phe Met Val Ser Ser
65   70   75   80

Ile Asp Glu Leu Gly Arg Arg Gln Leu Thr Asp Thr Ile Arg Arg Ser
             85   90   95

Leu Val Met Asn Ala Cys Glu Ile Thr Val Ala Cys Thr Lys Thr Ala
       100   105   110

```
Ala Phe Ser Gly Arg Gly Val Ser Arg Gln Lys His Val Thr Leu Ser
        115                 120                 125

Lys Asn Lys Phe Asn Pro Ser Ser His Lys Ser Leu Gln Met Phe Val
    130                 135                 140

Leu Cys Gln Lys Thr His Ala Pro Arg Val Arg Asn Leu Leu Tyr Glu
145                 150                 155                 160

Ser Ile Arg Ala Arg Arg Pro Arg Arg Tyr Tyr Thr Arg Ser Thr Asp
                165                 170                 175

Gly Lys Ser Arg Pro Leu Val Pro Val Phe Val Tyr Glu Phe Thr Ala
                180                 185                 190

Leu Asp Arg Val Leu Leu His Lys Glu Asn Thr Leu Thr Asp Gln Pro
                195                 200                 205

Ile Asn Thr Glu Asn Ser Gly His Gly Arg Thr Arg Thr
    210                 215                 220
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<210>   88
<211>   480
<212>   DNA
<213>   Varicella zoster

<220>
<221>   CDS
<222>   (1)..(480)

<400>   88
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atg gca tca cat aaa tgg tta ctg cag ata gtt ttt tta aaa act atc     48
Met Ala Ser His Lys Trp Leu Leu Gln Ile Val Phe Leu Lys Thr Ile
1               5                   10                  15

aca atc gcg tat tgt ctt cat ctc caa gac gac act ccg ttg ttt ttt     96
Thr Ile Ala Tyr Cys Leu His Leu Gln Asp Asp Thr Pro Leu Phe Phe
                20                  25                  30

gga gcc aaa ccg cta tcg gat gtg agt ttg att ata acg gaa ccg tgc    144
Gly Ala Lys Pro Leu Ser Asp Val Ser Leu Ile Ile Thr Glu Pro Cys
        35                  40                  45

gtg tca tcg gta tat gag gcg tgg gac tat gcg gca ccc ccg gta tca    192
Val Ser Ser Val Tyr Glu Ala Trp Asp Tyr Ala Ala Pro Pro Val Ser
    50                  55                  60

aac ctc agc gag gcg cta tcg gga atc gtg gtt aag aca aaa tgt cca    240
Asn Leu Ser Glu Ala Leu Ser Gly Ile Val Val Lys Thr Lys Cys Pro
65                  70                  75                  80

gta ccg gaa gtt ata ctt tgg ttt aaa gac aaa caa atg gcg tac tgg    288
Val Pro Glu Val Ile Leu Trp Phe Lys Asp Lys Gln Met Ala Tyr Trp
                85                  90                  95
```

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```
aca aat cca tac gtc acc tta aag ggg ctg gca caa tct gtt ggt gaa       336
Thr Asn Pro Tyr Val Thr Leu Lys Gly Leu Ala Gln Ser Val Gly Glu
        100             105             110

gaa cat aaa agc ggg gac ata cgc gat gct ttg ttg gat gcc ctt tcc       384
Glu His Lys Ser Gly Asp Ile Arg Asp Ala Leu Leu Asp Ala Leu Ser
        115             120             125

ggt gta tgg gta gac tct act cca tct tcc aca aat atc ccg gaa aat       432
Gly Val Trp Val Asp Ser Thr Pro Ser Ser Thr Asn Ile Pro Glu Asn
    130             135             140

gga tgt gtc tgg gga gcc gac cgt ttg ttc caa cgc gta tgc caa tga       480
Gly Cys Val Trp Gly Ala Asp Arg Leu Phe Gln Arg Val Cys Gln
145             150             155
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<210> 89
<211> 159
<212> PRT
<213> Varicella zoster

<400> 89

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Met Ala Ser His Lys Trp Leu Leu Gln Ile Val Phe Leu Lys Thr Ile
1               5               10              15


Thr Ile Ala Tyr Cys Leu His Leu Gln Asp Asp Thr Pro Leu Phe Phe
            20              25              30


Gly Ala Lys Pro Leu Ser Asp Val Ser Leu Ile Ile Thr Glu Pro Cys
        35              40              45


Val Ser Ser Val Tyr Glu Ala Trp Asp Tyr Ala Ala Pro Pro Val Ser
    50              55              60


Asn Leu Ser Glu Ala Leu Ser Gly Ile Val Val Lys Thr Lys Cys Pro
65              70              75              80


Val Pro Glu Val Ile Leu Trp Phe Lys Asp Lys Gln Met Ala Tyr Trp
                85              90              95


Thr Asn Pro Tyr Val Thr Leu Lys Gly Leu Ala Gln Ser Val Gly Glu
            100             105             110


Glu His Lys Ser Gly Asp Ile Arg Asp Ala Leu Leu Asp Ala Leu Ser
        115             120             125


Gly Val Trp Val Asp Ser Thr Pro Ser Ser Thr Asn Ile Pro Glu Asn
    130             135             140


Gly Cys Val Trp Gly Ala Asp Arg Leu Phe Gln Arg Val Cys Gln
145             150             155
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<210>   90
<211>   909
<212>   DNA
<213>   Varicella zoster


<220>
<221>   CDS
<222>   (1)..(909)

<400>   90
atg gct tct gta gca ggt aac gct agt aat atc tca cca cag ccc ccg        48
Met Ala Ser Val Ala Gly Asn Ala Ser Asn Ile Ser Pro Gln Pro Pro
1               5                   10                  15

tcg ggc gtt cca acc gga ggg gaa ttt gta ctg ata cct acc gcg tat        96
Ser Gly Val Pro Thr Gly Gly Glu Phe Val Leu Ile Pro Thr Ala Tyr
                20                  25                  30

tat tca cag ctg tta acc ggg cag act aaa aat ccg cag gta tca att       144
Tyr Ser Gln Leu Leu Thr Gly Gln Thr Lys Asn Pro Gln Val Ser Ile
            35                  40                  45

gga gct cca aat aac gga cag tat atc gtc ggg cca tat gga tct cca       192
Gly Ala Pro Asn Asn Gly Gln Tyr Ile Val Gly Pro Tyr Gly Ser Pro
        50                  55                  60

cac ccg cct gcc ttc cca cct aat aca ggg ggt tat ggt tgc cct ccg       240
His Pro Pro Ala Phe Pro Pro Asn Thr Gly Gly Tyr Gly Cys Pro Pro
65                  70                  75                  80

gga cac ttc ggg gga ccg tac ggg ttt ccg gga tat cca cca ccc aat       288
Gly His Phe Gly Gly Pro Tyr Gly Phe Pro Gly Tyr Pro Pro Pro Asn
                85                  90                  95

cgt ttg gaa atg caa atg tcc gca ttt atg aac gca ttg gcc gcc gaa       336
Arg Leu Glu Met Gln Met Ser Ala Phe Met Asn Ala Leu Ala Ala Glu
                100                 105                 110

cgg ggt att gac ttg cag acc ccg tgt gta aat ttt cca gac aaa acc       384
Arg Gly Ile Asp Leu Gln Thr Pro Cys Val Asn Phe Pro Asp Lys Thr
            115                 120                 125

gat gtc cgt cgt cca gga aaa cgg gat ttc aag agc atg gat caa agg       432
Asp Val Arg Arg Pro Gly Lys Arg Asp Phe Lys Ser Met Asp Gln Arg
        130                 135                 140

gaa ttg gat tct ttt tat agt ggg gag tct caa atg gac gga gag ttt       480
Glu Leu Asp Ser Phe Tyr Ser Gly Glu Ser Gln Met Asp Gly Glu Phe
145                 150                 155                 160

ccc tca aat ata tat ttt ccc ggt gaa cca acg tat ata acg cat cgg       528
Pro Ser Asn Ile Tyr Phe Pro Gly Glu Pro Thr Tyr Ile Thr His Arg
                165                 170                 175

aga cgt cga gtt tct cca tca tat tgg cag agg aga cac aga gtt tct       576
Arg Arg Arg Val Ser Pro Ser Tyr Trp Gln Arg Arg His Arg Val Ser
                180                 185                 190

aat ggt cag cac gaa gag ctt gct ggg gtt gtg gca aaa ctg caa cag       624
Asn Gly Gln His Glu Glu Leu Ala Gly Val Val Ala Lys Leu Gln Gln
            195                 200                 205
```

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```
gag gtt aca gag cta aaa tca caa aat ggg aca caa atg cct ttg tcg          672
Glu Val Thr Glu Leu Lys Ser Gln Asn Gly Thr Gln Met Pro Leu Ser
    210             215                 220

cac cat aca aat ata cca gag ggg aca cgg gat cct cga ata tcg att          720
His His Thr Asn Ile Pro Glu Gly Thr Arg Asp Pro Arg Ile Ser Ile
225             230                 235                 240

tta tta aaa cag ctt caa agc gtt tcg ggt cta tgc tca tcc caa aat          768
Leu Leu Lys Gln Leu Gln Ser Val Ser Gly Leu Cys Ser Ser Gln Asn
                245                 250                 255

aca aca agc acc cca cat aca gat aca gtt gga caa gat gta aat gca          816
Thr Thr Ser Thr Pro His Thr Asp Thr Val Gly Gln Asp Val Asn Ala
                260                 265                 270

gtg gag gcg agt tcc aag gcc cct tta ata cag ggg tcc acg gca gac          864
Val Glu Ala Ser Ser Lys Ala Pro Leu Ile Gln Gly Ser Thr Ala Asp
            275                 280                 285

gac gcc gat atg ttt gca aat cag atg atg gtg ggg cgg tgt taa          909
Asp Ala Asp Met Phe Ala Asn Gln Met Met Val Gly Arg Cys
        290                 295                 300
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<210> 91
<211> 302
<212> PRT
<213> Varicella zoster

<400> 91

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Met Ala Ser Val Ala Gly Asn Ala Ser Asn Ile Ser Pro Gln Pro Pro
1               5                   10                  15


Ser Gly Val Pro Thr Gly Gly Glu Phe Val Leu Ile Pro Thr Ala Tyr
            20                  25                  30


Tyr Ser Gln Leu Leu Thr Gly Gln Thr Lys Asn Pro Gln Val Ser Ile
        35                  40                  45


Gly Ala Pro Asn Asn Gly Gln Tyr Ile Val Gly Pro Tyr Gly Ser Pro
    50                  55                  60


His Pro Pro Ala Phe Pro Pro Asn Thr Gly Gly Tyr Gly Cys Pro Pro
65                  70                  75                  80


Gly His Phe Gly Gly Pro Tyr Gly Phe Pro Gly Tyr Pro Pro Pro Asn
                85                  90                  95


Arg Leu Glu Met Gln Met Ser Ala Phe Met Asn Ala Leu Ala Ala Glu
            100                 105                 110


Arg Gly Ile Asp Leu Gln Thr Pro Cys Val Asn Phe Pro Asp Lys Thr
            115                 120                 125
```

Asp Val Arg Arg Pro Gly Lys Arg Asp Phe Lys Ser Met Asp Gln Arg
    130   135   140

Glu Leu Asp Ser Phe Tyr Ser Gly Glu Ser Gln Met Asp Gly Glu Phe
145   150   155   160

Pro Ser Asn Ile Tyr Phe Pro Gly Glu Pro Thr Tyr Ile Thr His Arg
                165   170   175

Arg Arg Arg Val Ser Pro Ser Tyr Trp Gln Arg Arg His Arg Val Ser
            180   185   190

Asn Gly Gln His Glu Glu Leu Ala Gly Val Val Ala Lys Leu Gln Gln
            195   200   205

Glu Val Thr Glu Leu Lys Ser Gln Asn Gly Thr Gln Met Pro Leu Ser
    210   215   220

His His Thr Asn Ile Pro Glu Gly Thr Arg Asp Pro Arg Ile Ser Ile
225   230   235   240

Leu Leu Lys Gln Leu Gln Ser Val Ser Gly Leu Cys Ser Ser Gln Asn
            245   250   255

Thr Thr Ser Thr Pro His Thr Asp Thr Val Gly Gln Asp Val Asn Ala
            260   265   270

Val Glu Ala Ser Ser Lys Ala Pro Leu Ile Gln Gly Ser Thr Ala Asp
    275   280   285

Asp Ala Asp Met Phe Ala Asn Gln Met Met Val Gly Arg Cys
    290   295   300